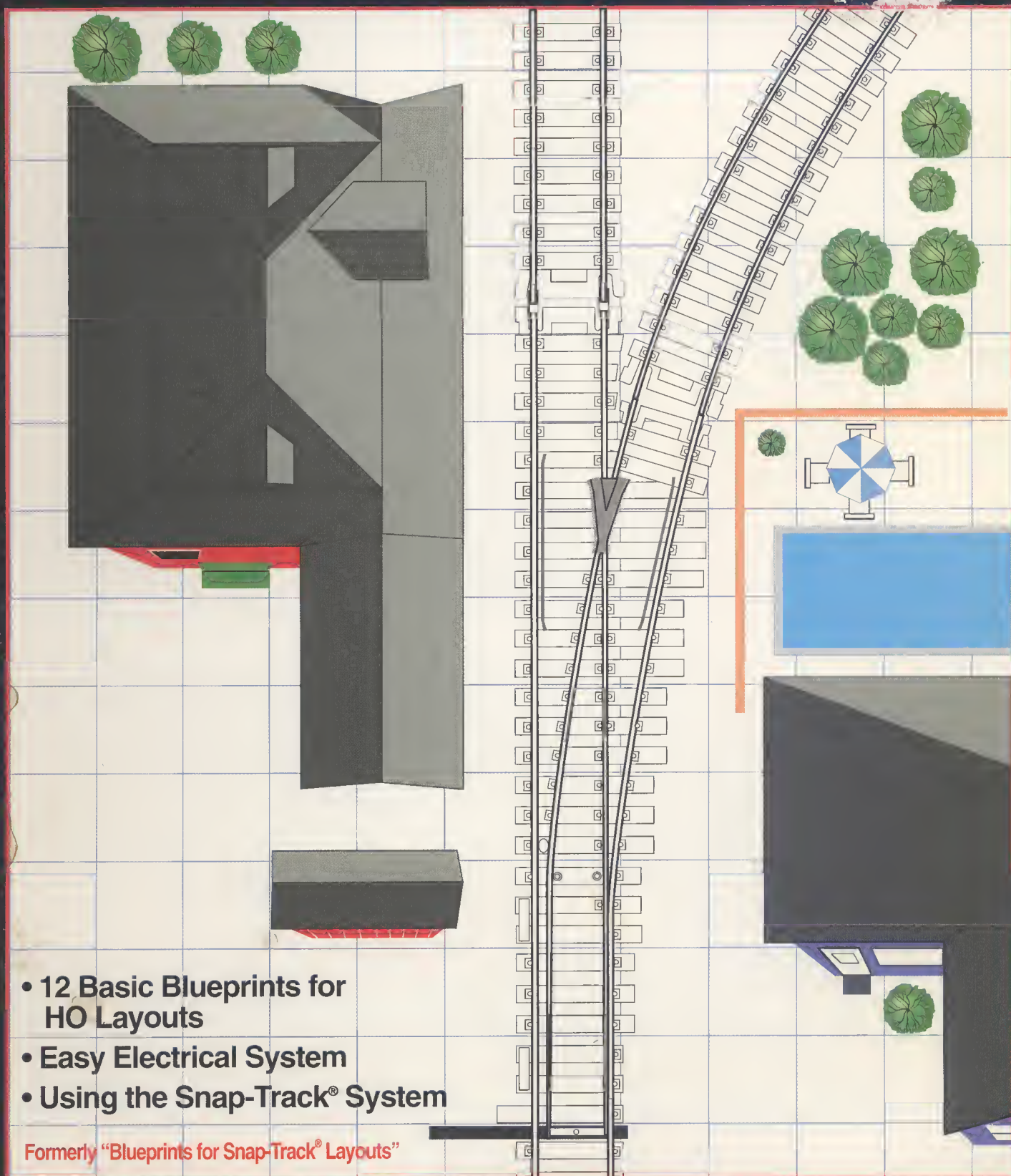


Beginner's Guide to HO Model Railroading



- 12 Basic Blueprints for HO Layouts
- Easy Electrical System
- Using the Snap-Track® System

Formerly "Blueprints for Snap-Track® Layouts"



A PERFECT ADDITION TO YOUR NEW HO LAYOUT!

Atlas Ready-to-Run Freight Cars



WIDE-VISION
CABOOSE



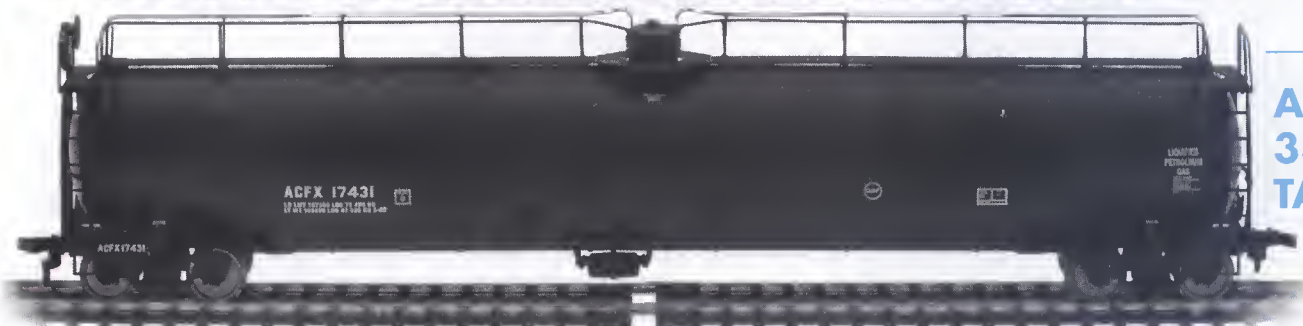
OVAL END
OPEN HOPPER



PS-2 COVERED
HOPPER



6-BAY
CYLINDRICAL
HOPPER



ACF®
33,000 GAL.
TANK CAR

Look for the entire line of Atlas' HO scale freight cars at your local hobby shop. For a catalog containing all currently available rolling stock, call us at (908) 687-0880.

New Atlas products to make layout construction and wiring easier than ever!

ATLAS RUBBER ROADBED - HO scale

Item #112

This new roadbed is a prototypical gray color, is flexible and easy to use. It installs just like split cork roadbed (for further instruction, see page 5).

One roll makes 25' of roadbed.



SPADE CONNECTORS - Item #201

This handy, small electrical hook-up connector was designed by Atlas for tight model railroad electrical spaces. For use with Atlas and other #18-22 wire and #3 screw post. 24 pieces per package.



ATLAS COLORED LAYOUT WIRE

Allows you to color code the different types of connections when wiring your layout. Twenty gauge, stranded copper. Each reel comes with 50' of wire.

#315 - Black

#318 - Yellow

#316 - Red

#319 - Blue

#317 - Green



PLUS...

ATLAS CUSTOM POWER 1700 POWER PACK - Item #310

Atlas' Custom Power® 1700 Power Pack offers high quality, high power at an affordable price. This item features an overload indicating lamp, separate power and reversing switches, is circuit breaker protected & UL listed. In addition, there is no pulse power to damage precision motors. Output is 14 V DC, 17 V AC, and 1.2 Amps at no load. Total output is 17VA.

See your local hobby shop for these and other Atlas model railroad products.

Atlas Beginner's Guide to HO Model Railroading

The layouts in this book are designed to be constructed with quality Atlas track and electrical components.

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Printed in the USA

First published in 1960 as *Blueprints for Snap -Track® HO Layouts*, this book has been completely updated and revised to reflect changes and upgrades in model railroading technology. © Copyright 1992 Atlas Model Railroad Co., Inc.

Introduction

Welcome to the fun and rewarding family hobby of model railroading and the company that is working everyday to keep it that way.

Begun in the 1920's by Stephan Schaffan Sr. as the Atlas Tool and Die Company, Atlas has a proud tradition as a family owned business with a reputation for quality and innovation. From it's modest beginnings as a tool and general machine shop, Atlas has become a leader in the worldwide model railroad industry, specializing in HO, N and O scale model railroad products.

In the 1930's, Stephan Schaffan Jr. joined the business and started to create the machines and processes that popularized model railroading. One of "Steve's" first projects was to develop a fixture to solder switches together. This eventually led to the production of a rail joiner. Steve went on to develop and patent such innovations as FLEX-TRACK® and SNAP-TRACK®. His was one of the first companies to mass produce HO track products, the most widely used scale in model railroading today.

In 1990, Atlas changed it's name to Atlas Model Railroad Co. Inc. to more clearly identify our products and goals to the general public.

A major goal of Atlas is to make the hobby easy to understand and layouts simple to build. The book you are now reading is an excellent example of this goal. It is divided into three main sections, (track, electrical and layouts) that allow you to quickly grasp the basics and select the specific products to help you get the job done.

One suggestion in your approach to this book is to read the glossary first. As in most other fields, model railroading has its buzz words that must be understood before proceeding. **We urge you to read Sections 1, 2 & 4 completely before selecting your layout in Section 3.**

As we approach the next century, Atlas pledges to continue to produce the high quality products and services that our customers expect and deserve. *Happy Railroading!*



The trusted name in Quality, Value, Performance and Service.

Glossary

A.C. (Alternating Current)

An electric current that reverses direction in a circuit at regular intervals. Ordinary house current is alternating current.

Ampere

A unit of electric current.

Block

An electrically isolated section of track that can be independently operated.

Brass

A yellow metal alloy consisting of copper and zinc.

Bumper

An obstruction placed at the end of a railroad track to prevent rolling stock from derailing.

Cab

A power pack.

Circuit

A closed path through which an electric current may flow.

Common Lead

A wire from the power supply to the common, or ungapped rail.

Common Rail

The one rail in model railroad track without electrical gaps.

Crossing

The point where two railroad tracks cross each other without joining.

Current

Electricity flowing in a circuit. Current flows from positive (+) to negative (-).

Cut

A group of freight or passenger cars.

D.C. (Direct Current)

An electric current that flows in one direction only.

Double Pole Double Throw (DPDT)

An electrical switch that can be adapted to reverse the flow of electric current.

Frog

The location where two rails cross in a turnout or crossing.

Gap

An electrical break in a rail.

Gauge

The distance between the rails of a railroad, measured from the inside of the railheads.

GAUGE

Actual Railroad: 4' 8 1/2"

HO Scale Railroad: 16.5 mm

HO Scale

A scale of model railroads and equipment that is 1/87th the size of the real items.

Insulating Joiner

A plastic clip that joins two sections of track mechanically but isolates them electrically.

Layout

A model railroad.

Main Line

The primary railroad track that carries through traffic.

Nickel Silver

A silvery colored metal alloy consisting of copper, zinc, and nickel.

Passing Siding

A double-ended siding, long enough for two trains to pass one another.

Pier Set

A number of graduated plastic piers that enables model railroad track to gain elevation by supporting the track at graduated intervals.

Points

The moving portion of a turnout.

Polarity

The movement of electricity from a power source (a power pack or battery, for example) to the place where it is used (a motor, for example) and then back to the power source to complete the circuit.

Power Pack

An electrical device that plugs into a household outlet and converts 110 volts AC current into 12 volts DC current. HO Scale model railroads use 12 volts DC current.

Prototype

The actual object that your model railroad equipment is patterned after.

Radius

A line from the center of a circle to any point along its outer edge. In model railroading it is a line from the center of an imaginary circle to the center of a curved section of track. Radius is always measured to the center of the track, mid-way between the rails.

Rail Joiner

A small metal clip used to join two sections of track mechanically and electrically.

Remote Control Turnout

A turnout (switch) whose points are electrically operated from a remote position.

Rerailer

A section of straight model railroad track resembling a road crossing, which is used to put rolling stock on the rails.

Reverse Loop

A section of track that goes around in a circle and comes back on itself and is joined by a turnout at this point. A reverse loop resembles a balloon on the end of a string.

Siding

A side or secondary track, also called a "spur".

Right of Way

The track and land owned by a railroad.

Single Pole Single Throw (SPST)

A simple "On-Off" electrical switch.

Snap Switch

A turnout, manufactured by Atlas, whose straight (through) leg is 9" in length and whose diverging

(branching) track has a radius of 18".

Snap-Track®

A system of sectional track components in HO scale, manufactured by Atlas.

Spur

See *Siding*.

Switch

1) A device to route train wheels from one set of rails to another by means of moveable points. Also called "track switch" or "turnout".

2) An electrical device that routes, reverses or interrupts the flow of electric current.

Switch Machine

A device either manual or electrical (remote), connected to the points of a turnout to change the setting of the route.

Terminal Section

Also known as terminal track. A section of model railroad track with attachments for wire. Used to conduct electricity from the power pack to the rails. Terminal sections may be straight or curved.

Tie

A timber laid crosswise to support railroad tracks.

Trunk Line

The main portion of a railroad.

Turnout

Same as a switch; that point where two diverging tracks come together.

Volt

A unit of electromotive force, comparable to pressure in a water pipe.

Way-Freight

A freight train consisting of a locomotive and one or more freight cars to be delivered to local industries.

Yard

A group of side tracks where railroad cars are stored or where trains are made or broken up prior to or after a run.

For a current, complete
catalog of Atlas products,
call (908) 687-0880.

SECTION 1

The Atlas Snap-Track® System

Atlas Snap-Track is a complete system of prefabricated sectional track work. This book tells you how to build twelve of the thousands of layouts that can be made with Atlas Snap-Track components and accessories, starting with a simple oval of 18" radius track. We hope it will be your blueprint to hours of model-railroading pleasure.

Each layout has been engineered to feature some of the fascinating operating maneuvers typical of real railroading. Look them over and choose the one that best fits your interests in model railroading.

Every layout includes its wiring diagram, complete with electrical elements and connections for using remote control snap-switches.

Much of the fun comes in expanding your model railroad after it is in operation. With Atlas Snap-Track components there is no trouble or waste involved in readjusting the track to make a new pattern. Some track plans in this book, such as Layouts HO-1, HO-2, HO-9 and HO-11, show how a simple arrangement can be made more complex with increased operating possibilities.

The entire Atlas Track System is available with nickel silver rail and black or brown ties. The Atlas track item numbers listed with each layout are for black track products. For the item number of brown track products, simply add a "90" in front of each track item number shown.

All track gets dirty after a period of time and dirty track does not conduct electricity very well. Use a track cleaning eraser, available in hobby stores, and a soft cloth to clean the rails. Do not use steel wool, sand paper or liquids to clean the track. Do not run your railroad on the floor or rug. Lint and dirt causes damage and poor operation. We recommend you secure all track to a table, as shown on page 8. (Note: If you plan to use roadbed, see p. 42 before proceeding.)

By fastening Snap Track to a tabletop, you create a durable model railroad which can easily be expanded. Assemble all the track before fastening any of it down, checking all metal rail joiners to see that they are tight and will conduct current reliably. Replace any that have become loose from previous handling. Be particularly careful to see that all the plastic (insulating) rail joiners are in the proper place and on the side of the track indicated on the plan.

Fasten track down with Atlas Track Nails inserted through the holes in the center of the ties near the ends of the sections. Check the track alignment as you proceed, using a straightedge for smooth operation and realism. Two nails per track section will usually be enough. Just bring the head of the nail down snugly against the tie—if pressed down too hard, the ties may be damaged or the track gauge may be reduced.

Key to Snap-Track Sections

SYMBOLS USED IN THIS BOOK

9" FULL STRAIGHT SECTION



6"



6" STRAIGHT SECTION

3"



3" STRAIGHT SECTION



TRACK ASSORTMENT (TWO OF EACH)



T

STRAIGHT TERMINAL SECTION



B

BUMPER



15

FULL SECTION 15" RADIUS



1/2-15

HALF SECTION 15" RADIUS



FULL SECTION 18" RADIUS



T

18" RADIUS TERMINAL SECTION



1/2-18

HALF SECTION 18" RADIUS



1/3-18

THIRD SECTION 18" RADIUS

RIGHT AND LEFT SNAP SWITCHES



90° SNAP CROSSING



30° SNAP CROSSING

INSULATED RAIL JOINERS



ONE RAILS



BOTH RAILS



P-12

3" HIGH PIER

1/4" THRU 2 3/4" PIERS
BY 1/4" INCREMENTS



P-1 P-2 P-3 P-4 P-5 P-6
P-7 P-8 P-9 P-10 P-11



RERAILER



PLATE GIRDER BRIDGE

Scale of Drawing: 1 1/2" = 1' 00"

15" and 18" radius circles require 12 full sections.

A third Section 18" radius track is supplied with each Snap-Switch. The number of additional third Section 18" radius tracks to be purchased is indicated in the list of items required for each layout. All Atlas Snap-Track sections are available with both brass and nickel silver rails. Nickel silver track is available with both black and brown ties. Brass track is available with black ties only.

Tips on Designing and Modifying Snap-Track® Layouts

Use of 15" Radius

Many HO passenger cars and locomotives will not go around 15" radius curves. Therefore, use the 15" radius sections only in spurs and sidings where the longer equipment will not have to operate.

Easement for Sharp Curves

A section of 18" radius track at the entrance to a 15" radius curve greatly improves appearance and operation, as the train is led more gently into the sharp curve by this "easement" section, which is like the transition curves used on real railroads. See fig. 1-1.

Avoiding S-Curve Troubles

To avoid derailments at Reverse or S-Curve locations, a section of straight track should be placed between the two curves. Length "L" should be at least as long as the longest car that must pass over that section of track. See fig. 1-2.

Making Crossovers with Snap-Switches

To avoid trouble from the resulting S-curve, use a straight section "x" at least 2½" long between the two Snap-Switches making up a crossover between parallel tracks. See Fig. 1-2.

Substituting Switches for Curved Track

An Atlas Snap-Switch, and the ⅓-18" radius curved section furnished with it, exactly equal the curvature of a full section of 18" radius track. The curvature of the Snap-Switch, however, starts at a point 1½" from the end of the switch section. In substituting a Snap-Switch for a section of curved track, it is necessary to allow for this, either by shortening the straight track ahead of the switch by 1½" or by adding a 1½" straight section at the opposite side of the oval. See Fig. 1-3.

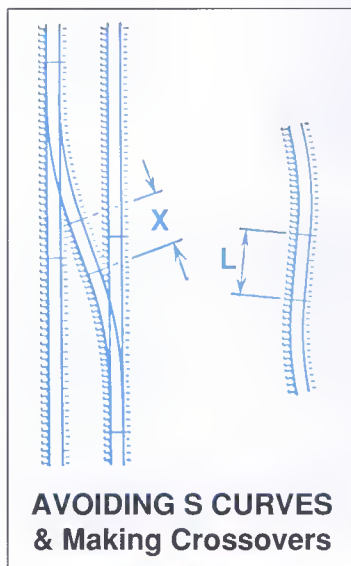


Fig. 1-2

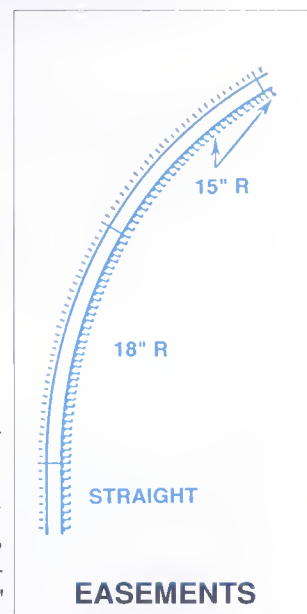


Fig. 1-1

Use a Larger Table Top if You Can

These layouts for 4 x 8-foot table tops include trackage close to the edge of the platform, in order to provide maximum operating interest. If you have room, you can improve these layouts considerably by building them on a 5 x 9-foot tabletop, allowing for scenery on both sides of the track. Many lumber dealers carry 5 x 9-foot plywood panels (or 4 x 5-foot half-panels) for use in building ping pong tables.

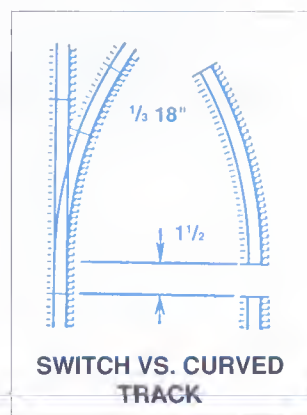


Fig. 1-3

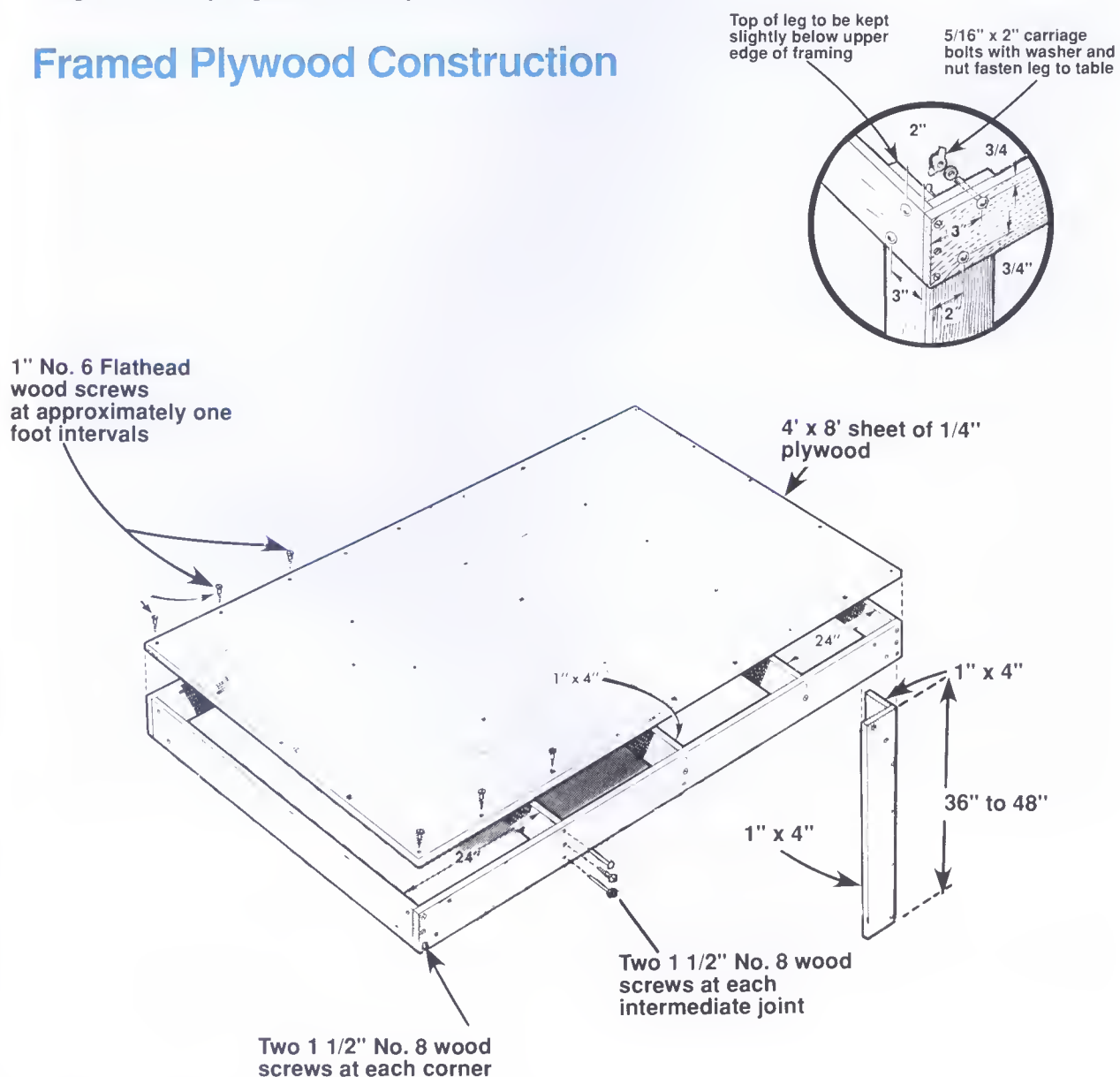
Constructing the Foundation for Your Railroad

All of the track plans in this book will fit on one or two sections of standard 4 x 6, 4 x 8 or 4 x 4-foot size plywood. The wood framing which supports the plywood is made from 1" x 4" lumber.

The drawing shows the framing for a 4 x 8-foot layout. Similar framing is used for 4 x 4 or 4x6 foot sizes by omitting one or two intermediate cross members. The platform height is determined by your height and how you prefer to view your trains.

While track may be fastened directly to the plywood, this method can bend track nails and results in noisy train operation. The preferred alternative is to cover the plywood with a softer, sound absorbing material. Homasote®, a gray pressed paper wall-board, is available at most larger building material or home-improvement supply stores. Fasten the Homasote to the tabletop with No. 4, 1" flathead screws.

Framed Plywood Construction



SECTION 2

The Atlas Electrical Component System

Wiring a model railroad layout often causes modelers unnecessary anxiety. The extremely reliable *Atlas Electrical Component System* solves the problems.

The purpose of this section is not to teach you to plan the controls for a large, complex, multi-train layout of your own design, but rather to acquaint you briefly with those Atlas Electrical Components which are used to control the twelve layouts in this book. A much more detailed discussion of the full line of Atlas Electrical Components, and their many applications, is available in the Atlas Book, "*The Complete Atlas Wiring Book*", Item #12.

Symbols

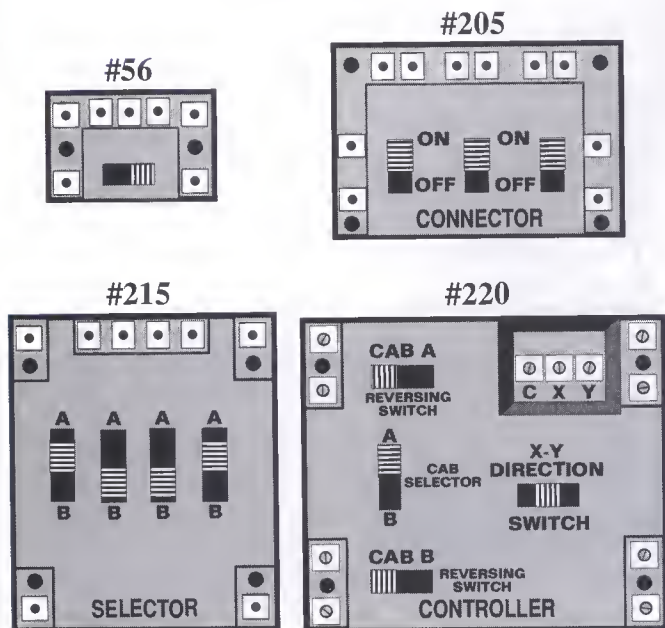


FIG. 2-1

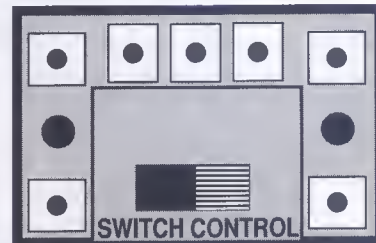


Fig. 2-2

a) **#56 - The Atlas Switch Control Box** is an electrical device which controls the setting of remote switch machines by a momentary burst of power. Merely slide the button to the position desired and depress briefly. For a complete discussion of wiring and use, see the section titled "Connecting Remote Control Turnouts." (p. 14)

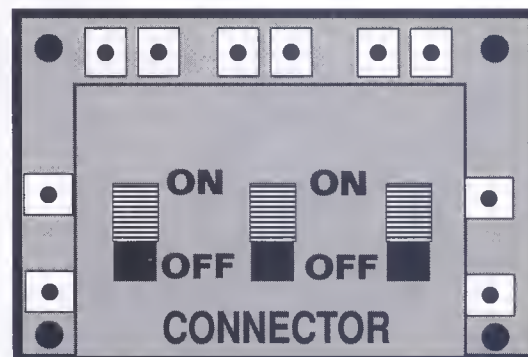


Fig. 2-3

b) **#205 - The Atlas Connector** turns electrical power on or off to track sections or accessories. It is comprised of three SPST (on/off) switches in one convenient package. Any number may be connected together by means of the spades provided. Fig. 2-4 depicts examples of use and wiring.

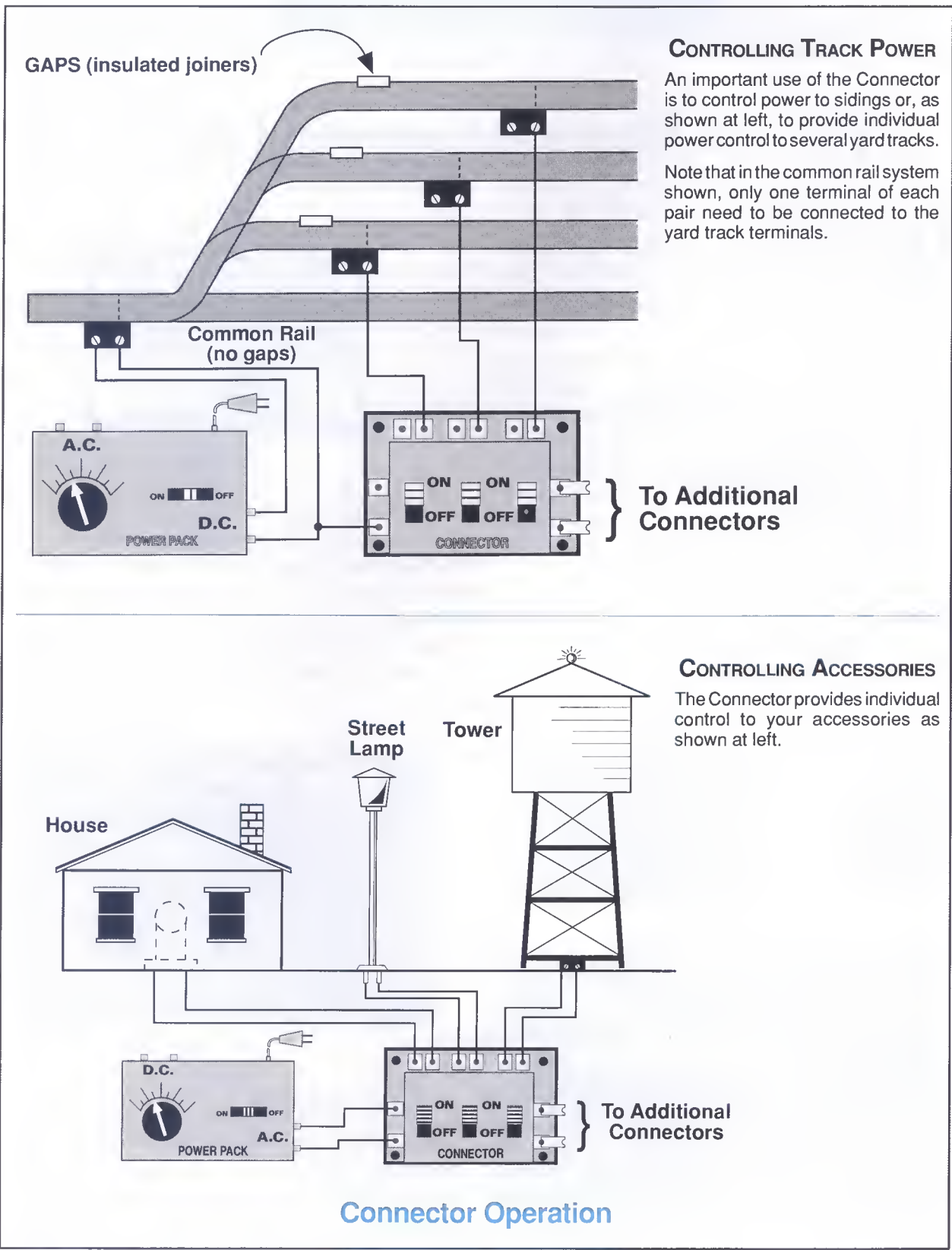


Fig. 2-4

c) **#215 - The Atlas Selector** is a device that enables the use of two Power Packs (cabs) and Blocks (sections of electrically isolated track), so two trains may be operated and controlled at the same time. Each selector has four sliding buttons which determine the routing of current. Fig. 2-5 depicts a selector.

Sections of track are isolated electrically by substituting *Atlas Insulating* (plastic) *Rail Joiners* for the metal joiners. Merely slip on the plastic joiner half-way, being careful not to damage the small central tab.

Fig. 2-6 shows a typical example of selector use and wiring. A sheet of press-on numbers is provided with each selector. These numbers are positioned directly above each button and correspond to the terminal sections. To use power pack (cab) A for any block, slide the button up to the A position. To use power pack (cab) B, slide the button down to the B position. The center is "off" and current is disconnected.

#215

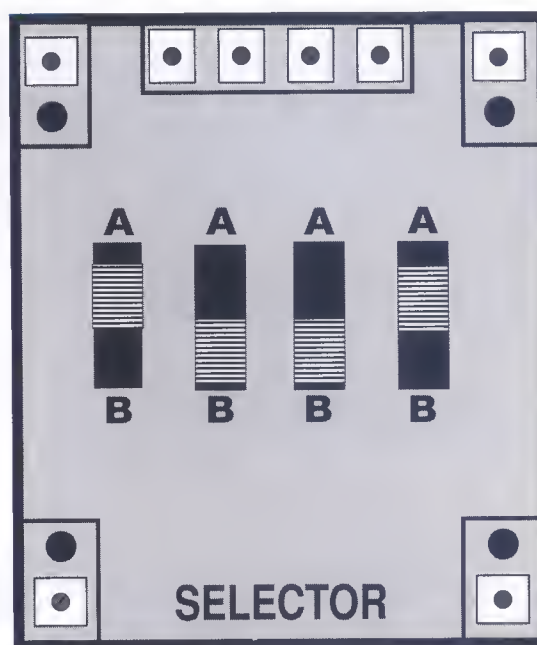


Fig. 2-5

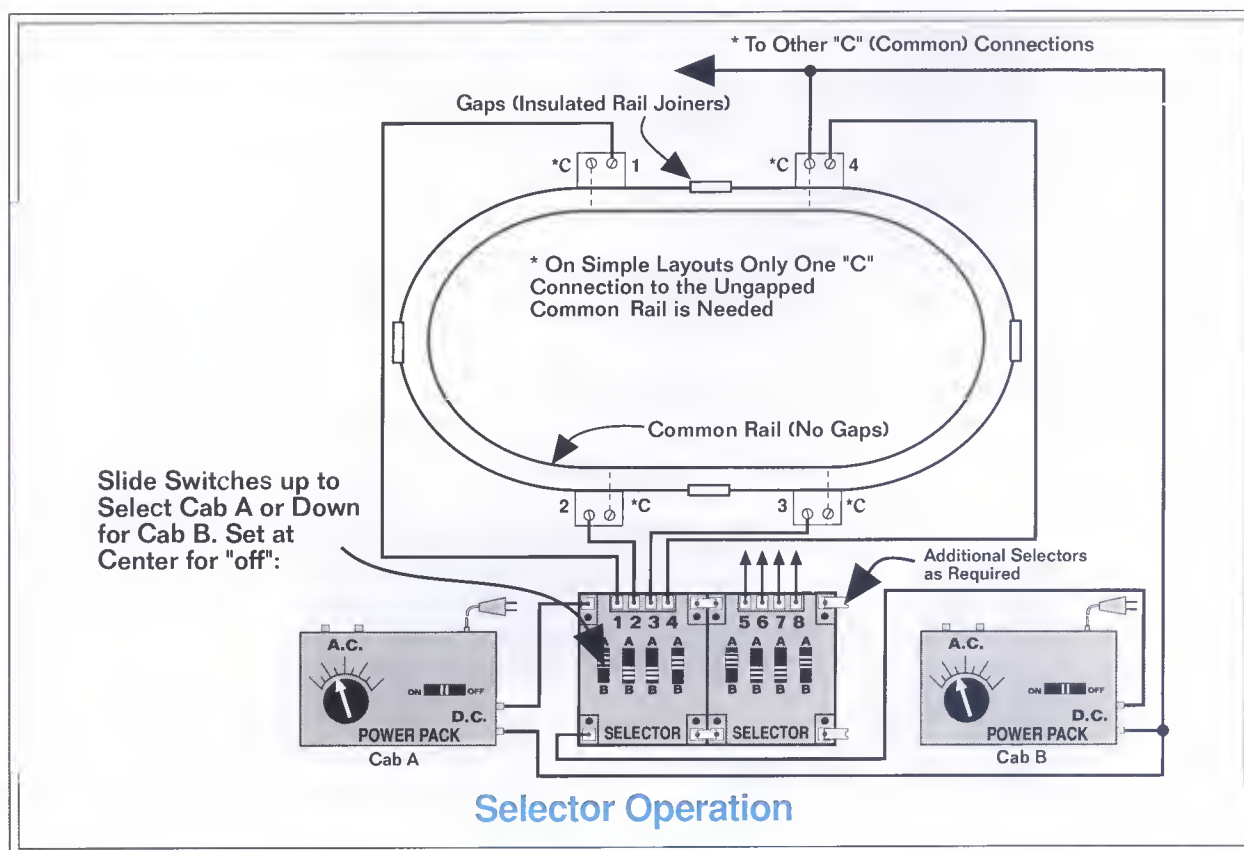


Fig. 2-6

d) **#220 - The Atlas Controller** is an electrical instrument that provides the proper operation of Reversing Loops. A reversing (or reverse) loop is a situation where the track goes around in a circle and comes back on itself in the opposite direction, as drawn in Fig. 2-8. This situation requires special wiring and operation which is discussed in the section titled "Reverse Loop Wiring." (P. 15) The Atlas Controller, Fig. 2-7, allows this wiring and operation to be accomplished easily.

#220

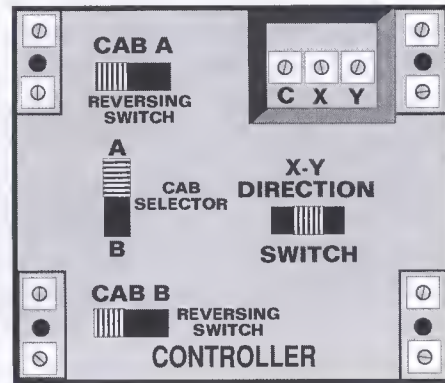
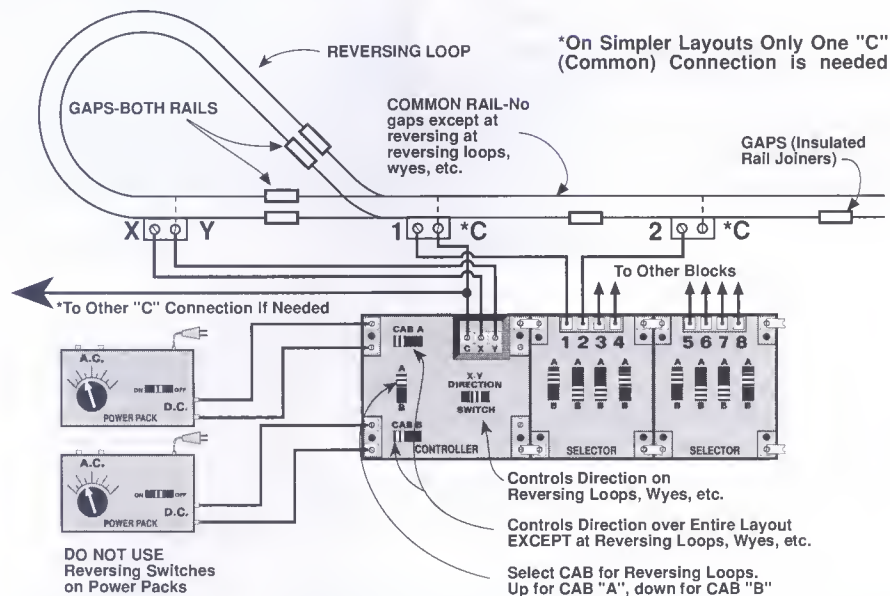


Fig. 2-7

CONTROLLING REVERSING LOOP



CONNECTING SEVERAL CONTROLLERS

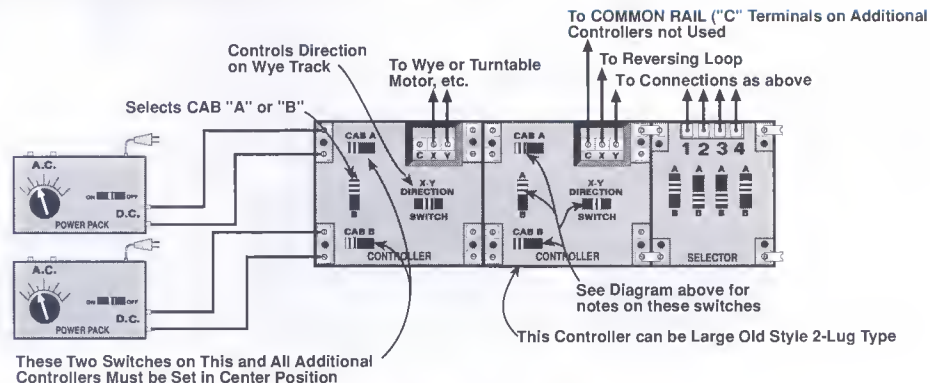


Fig. 2-8

USING CONTROLLERS

Power Pack

When choosing a power pack, make sure that it is of good quality and has a circuit breaker to protect against short circuits and overloads. Atlas' Custom-Power® 1700 Power Pack would be an example of a good power pack with these features which is reasonably priced (see the second page of this book for more information). Please keep in mind that many power packs supplied with inexpensive train sets are more useful as paper weights than as electrical components.

The diagrams in this book show two individual power packs rather than a dual control unit. Some dual control packs have internal wiring which will not allow the simple style of wiring used in this book.

Your power pack should have at least 4 screws, or terminals, on the side or back. One pair is variable DC and is used to power the locomotive. The other pair of terminals is fixed AC and is used to power accessories, such as switch machines.

All power packs used for two rail HO scale trains contain electrical devices to convert ordinary house current (110 volts AC) to a much safer 12 volts.

Remember to *pull the plug* when you are finished running your railroad!

Wire

Wire comes in two types - solid or stranded. We recommend using stranded wire because it flexes more easily. Eighteen or twenty gauge stranded wire is suitable for model railroads, and can be found in many hobby shops, hardware and electrical supply stores. Atlas produces five different colors of 20 gauge stranded copper wire designed with layout wiring in mind.

Using colored wire will make wiring your layout a little easier by organizing the different types of connections. For example, yellow insulation for all common rail connections, green for all numbered connections, etc. This color consistency will prevent unnecessary confusion when connecting wires beneath the layout.

When connecting wires to the terminal sections, drill two small holes through the tabletop beside the screws of the terminal sections. Run as much of the wiring as possible under the table to the power pack.

Basics of Wiring

First, to review, let's consider the basic two-rail principle of model railroad operation using *Direct Current* (DC). The electrical current is applied directly from the power pack to the two running rails, which must be insulated from each other at all points. The wheels of the train are insulated from their neighbors on the opposite rail so as not to cause a short circuit.

As Fig. 2-9 shows, the electric current from the power pack reaches the motor through uninsulated wheels. One group of these uninsulated wheels picks up current from the right hand rail. Another group, on the opposite side of the locomotive, picks up current from the left hand rail.

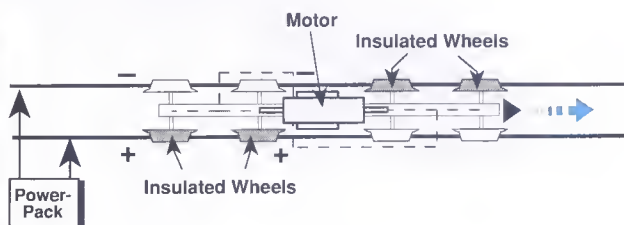


Fig. 2-9

Electrical Pickup

The polarity of the magnet in DC motors is such that when positive (+) is applied to the to the right hand rail, the locomotive will go forward, and when the positive is on the left hand rail, the motor will spin in the opposite direction and the locomotive will go backward. If there is an electrical reversing switch between the power supply and the track (usually found on the power pack), we can control the direction of the locomotive by changing the movement of electricity (polarity) to the rails. The reversing switch essentially does as is shown in Fig. 2-10. It takes a pair of wires connecting plus (+) and minus (-) terminals in the power pack to the two running rails and interchanges them.

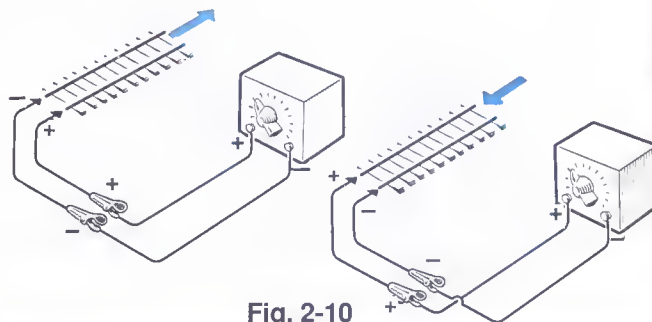


Fig. 2-10

If a rail of positive (+) polarity touches or crosses a rail of negative (-) polarity, as in a turnout or crossing, a short circuit will occur. Nothing will run unless some means is provided to keep the rails separated. In Atlas turnouts and crossings the intersecting rails are notched so they do not come into contact with each other. The areas around the crossing rails are molded in plastic, which holds the rails in place so they cannot short electrically or shift mechanically and cause trouble. The polarity of the rails, as shown in Fig. 2-11, will remain the same regardless of which way the turnout points are positioned. There are no wire connections to fail, and the turnout points do not have to carry current to trains beyond the turnout.



Fig. 2-11

Track Connections

Connections to tracks are made with straight or curved (18" radius) terminal sections. The wiring of the curved terminal sections on the layouts shown throughout this book is shown in Fig. 2-12 by a numbered arrow to a corner of the terminal, indicating which screw to use.

When securing wire to a screw, bend a loop in the clockwise direction shown in Fig. 2-13 so that tightening of the screw will pull the wire into place. To avoid loose ends, stranded wire should be twisted tightly before forming the loop.

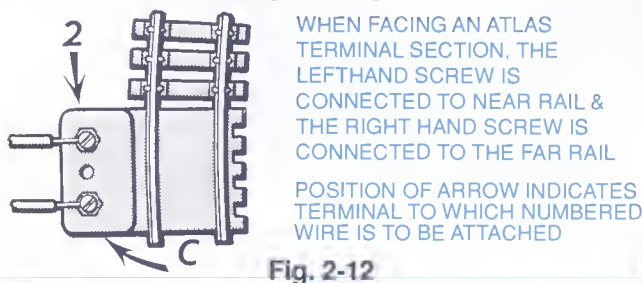


Fig. 2-12

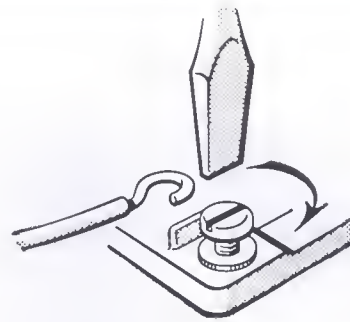


Fig. 2-13

Connecting Remote Control Turnouts

The wiring system for Switch Machines takes its power from the AC (Alternating Current) terminals of your power pack and must be completely separated from the DC track power circuitry.

Switch Machine Power, which must be momentary to prevent coil burnout, is handled by Atlas' Switch Control Boxes. Just slide a button to the left or right and then press down briefly to send a pulse of power into the switch machine.

Remote Control Switch Machines for actuating turnouts are shown throughout the layouts in this book as depicted in Fig. 2-14. Leading to one end of each machine is a pair of numbered arrows such as 2N and 2R. These markings refer to the two outermost screw terminals on each machine as shown in the enlarged view of the terminals-end of a switch machine. Please note that the switch machines have a center terminal screw which need not be shown on the track plan drawings.

The third sketch in Fig. 2-14 shows a typical group of Atlas Switch Controls Boxes as they appear in the drawings throughout this book. Each box is numbered and shows a pair of terminals; one marked N (Normal Setting), the other marked R (Reverse Setting). These N and R terminals are to be connected to the N and R terminals on the correspondingly numbered switch machines on the layout. The center terminals of all switch machines should be connected together at any location under the layout from which point a wire must be run to the center terminal of any one of the control boxes. The N and R positions on the control boxes refer respectively to the "normal" turnout setting; usually the main line or most frequently used route and "reverse" setting for a Siding or Branch Line.

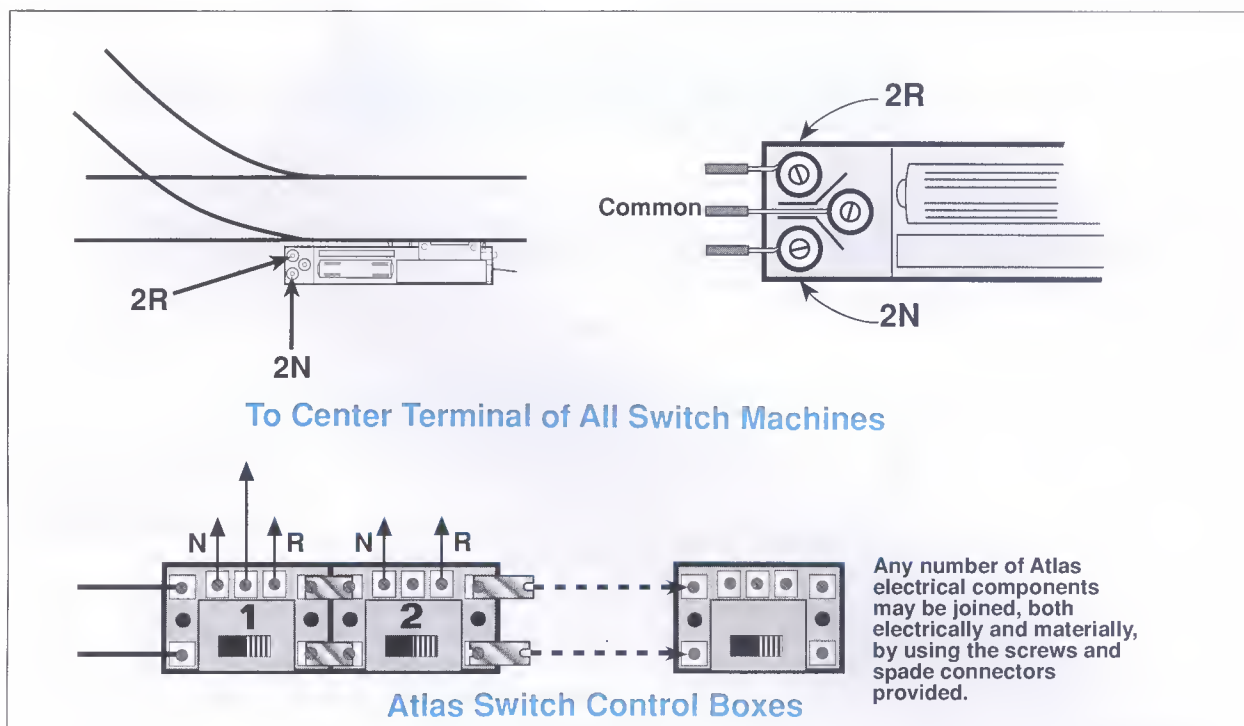


Fig. 2-14

Reverse Loop Wiring

If you've gotten this far, congratulations! You can now build and wire all but two of the layouts in this book. In order to wire the layouts HO-11 and HO-12, we must introduce you to reverse loop wiring. Don't worry, it's not complicated.

Using Atlas Snap-Switches with their insulated frog construction, entire layouts can be assembled with only the few insulated joints needed to break the track into blocks for separate control of different trains. There is one situation in two-rail, though, which requires slightly special wiring. This is the so-called "reversing loop" or section - any point in a track plan where a train can, while continuing to run forward, find itself traversing a section of track in the opposite direction. If it appears to be going in the opposite direction but is not actually on the same track (as in the ordinary Fig.-8 arrangement in Fig. 2-15), there is no reversing loop in the electrical sense. If, however (as in Fig. 2-16) the track comes back upon itself, there would be a short circuit (+ connected directly to -) unless two insulated joints were placed in the rails of the loop, as at A.

A train cannot run across a change in polarity like point A (in Fig. 2-16), so a section on the loop as long as a train (the "reversing section") is isolated with four insulated rail joiners and hooked up to the special pair of terminals at the top of the Atlas

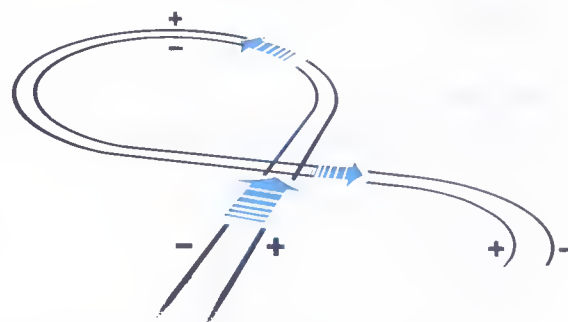


Fig. 2-15



Fig. 2-16

Controller unit, as in Fig. 2-17. With the reversing section direction switch in the position shown in Fig. 2-17, a train can run smoothly into the reversing section. Then, as soon as it is entirely in the reversing section, the main line direction switch on the Controller is thrown (Fig. 2-18) and the polarity at the exit of the loop (A) is now correct. The train now can proceed back onto the main-line without interruption.

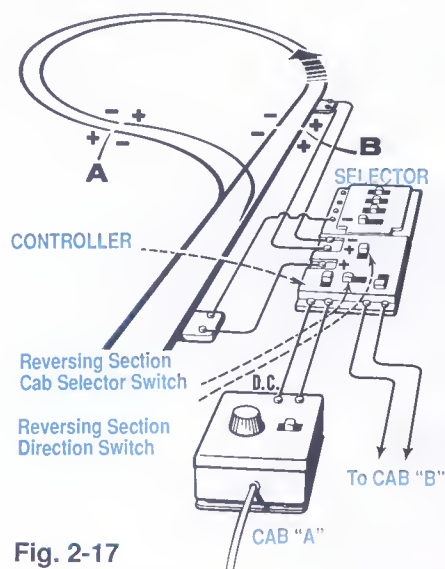


Fig. 2-17

Reverse Loop Wiring & Operation - Entering

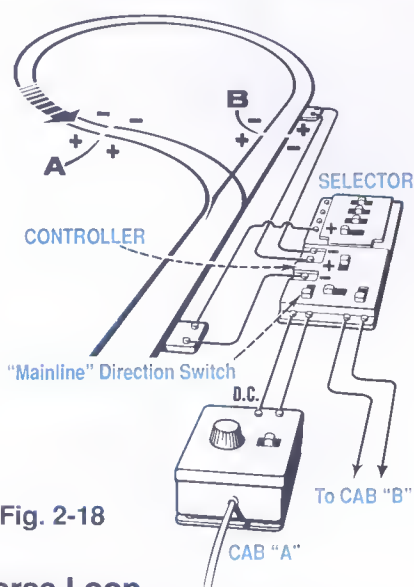


Fig. 2-18

Reverse Loop Wiring & Operation - Exiting

Conclusion to Wiring

We realize that the temptation to begin running your trains before all components are assembled completely is just too great. But guess what? We *want* you to try as you go!

It's best to give each section a test run (or two or three) as you go along. This way, you can catch inevitable "glitches" as they occur, rather than searching through your entire wiring system once it's completed to correct any mistakes. Even simple layouts contain many connections and the best modelers occasionally hook wires to the wrong terminals, preventing the whole works from operating properly.

So—mount all the components on your panel, have the terminal joiners and switch machines in place with their wires sticking down through holes in the baseboard, and connect the power packs to the panel. Hook up the common ("C") connection between panel and track. But then, hook up one block or one switch machine at a time. Test it out by seeing that the train runs properly—that it can be fed from either pack, forward and backward, that it runs to the end of the block and then stops, and so on. Sooner or later, something won't check out, but now it is no problem. You know that the wire causing the trouble has to be the one you just connected. No time is wasted in diagnosis and you are quickly "back on the track".

You will note on all the track plans in this book, we've shown only one common connection (C) to the track. Common rail is continuous (ungapped) throughout the layout and, usually, only one connection is needed. There are conditions, however, which make additional common connections desirable. Loose rail joiners can cause a break in the common rail's continuity. On some of the larger layouts the extreme length of the common rail may cause a voltage drop on those sections of track most distant from the common connection. You may, therefore, wish to install a few more, evenly spaced, common rail connections.

SECTION 3

Twelve Basic Blueprints for HO Layouts

		Pages
1.	Layout HO-1: <i>The Way-Freight Special</i> A simple oval with two spurs. Size: 4' x 6'.	18-19
2.	Layout HO-2: <i>The Dispatcher's Delight</i> An expanded HO-1 with independent electrical control of the various track sections. Size: 4' x 6'.	20-21
3.	Layout HO-3: <i>Up-And-Over in 4' x 6'</i> Using a Pier Set to go up and over another track. Size: 4' x 6'.	22-23
4.	Layout HO-4: <i>Twice-Around in 4' x 6'</i> Double the length of run in a given space. Size: 4' x 6'.	24-25
5.	Layout HO-5: <i>The Senior Twice-Around</i> A larger HO-4 twice-around layout. Size: 4' x 6'.	26-27
6.	Layout HO-6: <i>The Trunk Line</i> Features double main track operations with sidings. Size: 4' x 8'.	28-29
7.	Layout HO-7: <i>The Junior Pretzel</i> Long main line runs with passing tracks and a busy junction are featured here. Size: 6' x 8'.	30-31
8.	Layout HO-8: <i>The Super Pretzel</i> Much longer main line run with passing tracks and three crossings. Size: 8' x 8'.	32-33
9.	Layout HO-9: <i>Figure 8 with Spurs</i> The basic Figure 8 railroad. Size: 4' x 8'.	34-35
10.	Layout HO-10: <i>The Yardmaster</i> A Figure 8 railroad with through side tracks. Based on Layout HO-9. Size 4' x 8'.	36-37
11.	Layout HO-11: <i>The Out-And-Back</i> Variation of the Figure 8, with reversing loop and terminal. Size: 4' x 8'.	38-39
12.	Layout HO-12: <i>The Up-And-Over-Dogbone</i> This plan provides a maximum main track run in the available space. Includes a reversing loop and a pier set for elevation. Size: 6' x 10'.	40-41

LAYOUT HO-1

The Way-Freight Special

This 4 x 6-footer gives you plenty of opportunity to duplicate the work of a "way" or local freight as it sets out and picks up cars at various industry sidings along its route. In laying the track, locate its center lines at the distances from the edge of the platform indicated in the blueprint. You will then find that this plan can be converted into Plan HO-2 with very little shifting of the track already in place.

The Atlas switch controls in the wiring diagrams in this manual are arranged so that pushing the button to the left sets the track switch to the "normal" position—that is, to send the train along the main line. The "R" wire from the right-hand position of the control button throws the switch to the "reverse" position, routing the train into the siding or secondary track. Thus, a glance at your panel will tell which switches are out of their normal position.

ATLAS Track* Products required for LAYOUT HO-1

Item #	Item	Qty.
#150	9" Straight Section	4
#151	Full Section-15" radius	2
#152	Full Section-18" radius	11
#822	6" Straight Section	1
#835	Third Section-18" radius (Included with Snap-Switches-purchase 2)	4
#840	Straight Terminal	2
#843	Bumper	2
#844	Rerailer	1
#845	18" Radius Terminal	1
#847	Straight Track Assortment	1
#850	Snap-Switch-Remote (Left)	2
#55	Insulating Rail Joiners	1 pkg.
#205	Connector †	1
#2540	Track Nails	1 pkg.

*Atlas track products are available in black or brown ties with nickel silver rail.

† If you expect to expand your railroad later, use a #215 selector instead of the # 205 connector.

NOTE: Atlas Switch Control Box (#56), is provided with All Atlas Remote Snap Switches.

LAYOUT HO-2

The Dispatcher's Delight

This track plan introduces the use of two separate power packs and the Atlas Selector to give independent control over the current in the various sections of track (blocks) separated by insulated rail joiners. Thus, two trains can run at the same time, with each running at the speed and in the direction determined by the power pack to which the Selector has connected its block.

Since each power pack controls one train, model railroaders often refer to the controls on the power pack as a "cab" and assign one engineer to each cab to run his train over the line.

Since this is a single-track railroad, your trains will have to go in and out of the double-ended passing tracks to meet and pass

each other, and, as the dispatcher, you will be kept busy scheduling their movements. With practice, two short trains can often make "non-stop meets" in which neither train has to come to a complete halt in meeting the other. A further test of your skill can come in running a local freight which must set out and pick up cars in the three industry spurs during the time that a second, faster train leaves the way clear.

This layout may be converted from LAYOUT HO-1

ATLAS Track* Products required for LAYOUT HO-2

Item #	Item	Qty.	Conversion
#150	9" Straight Section	5	1
#151	Full Section-15" radius	7	5
#152	Full Section-18" radius	6	—
#822	6" Straight Section	2	1
#835	Third Section-18" radius (Included with Snap-Switches- purchase none)	7	3
#840	Straight Terminal	3	1
#843	Bumper	3	1
#844	Rerailer	2	1
#845	18" Radius Terminal	5	4
#847	Straight Track Assortment	1	—
#850	Snap Switch-Remote (Left)	6	4
#851	Snap Switch-Remote (Right)	1	1
#55	Insulating Rail Joiners	1 pkg.	—
#215	Selector	2	1
#2540	Track Nails	1 pkg.	—

*Atlas track products are available in black or brown ties with nickel silver rail.

In wiring the layout, be careful to connect the wires to the particular binding post called for by the diagram. As you connect each wire, run a train through the section it controls to check its correctness. In this way you will catch any errors before the presence of other wires might make things more confusing. For neatness, drill a hole through the layout board and control panel at each terminal and run the wiring underneath.

LAYOUT HO-3

Up-And-Over in 4'x6'

Excitement builds when trains run up and down grades and tracks cross over each other on bridges. This layout uses the Atlas Pier Set to provide two-level operation in the minimum space of 4 x 6-feet, with two of the realistic Atlas Plate Girder bridges carrying the upper track across the main line and a spur track.

Location of each of the piers is indicated on the diagram according to the pier number, which is found molded into the plastic on the inside of each unit. Intermediate piers are made up of the lower-numbered pier plus one of the 1/8" thick shims supplied with the set.

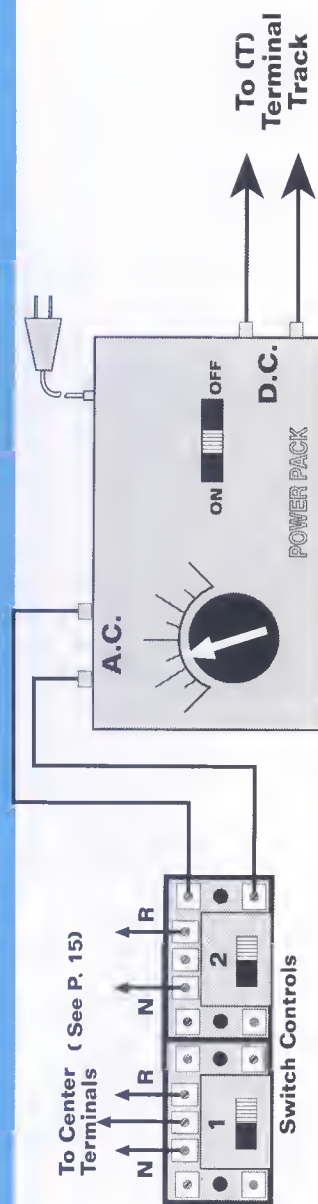
In building this railroad, first paint the top of the layout in an appropriate earth color. Then set up the track and piers and adjust their positions until the lower-level tracks are centered beneath the bridges. Check to see that there are no kinks in the curves and then mark the pier positions on the table-top.

This is basically a one train railroad, so the wiring consists of only two connections from your power pack to the one terminal section, plus connections to the snap switches if you are using the remote-control switch machines.

ATLAS Track* Products required for LAYOUT HO-3

Item #	Item	Qty.
#150	9" Straight Section	7
#151	Full Section-15" radius	3
#152	Full Section-18" radius	21
#823	3" Straight Section	1
#834	Half Section-18" radius	4
#835	Third Section-18" radius (Included with Snap-Switches-purchase none)	2
#843	Bumper	2
#844	Rerailer	1
#845	18" Radius Terminal	1
#847	Straight Track Assortment	1
#850	Snap-Switch-Remote (Left)	2
#80	Pier Set	1
#81	3" Bridge Piers	2
#885	Plate Girder Bridge	2
#2540	Track Nails	1 pkg.

*Atlas track products are available in black or brown ties with nickel silver rail.



LAYOUT HO-4

Twice-Around in 4'x6'

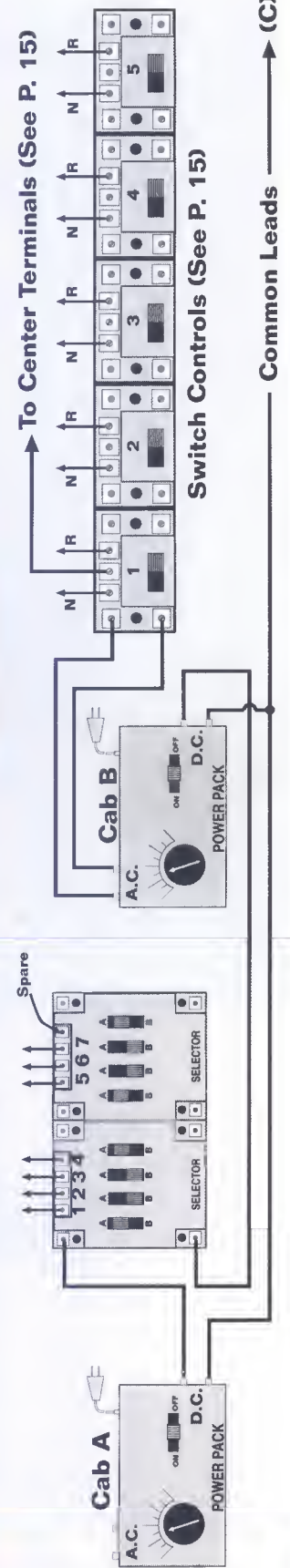
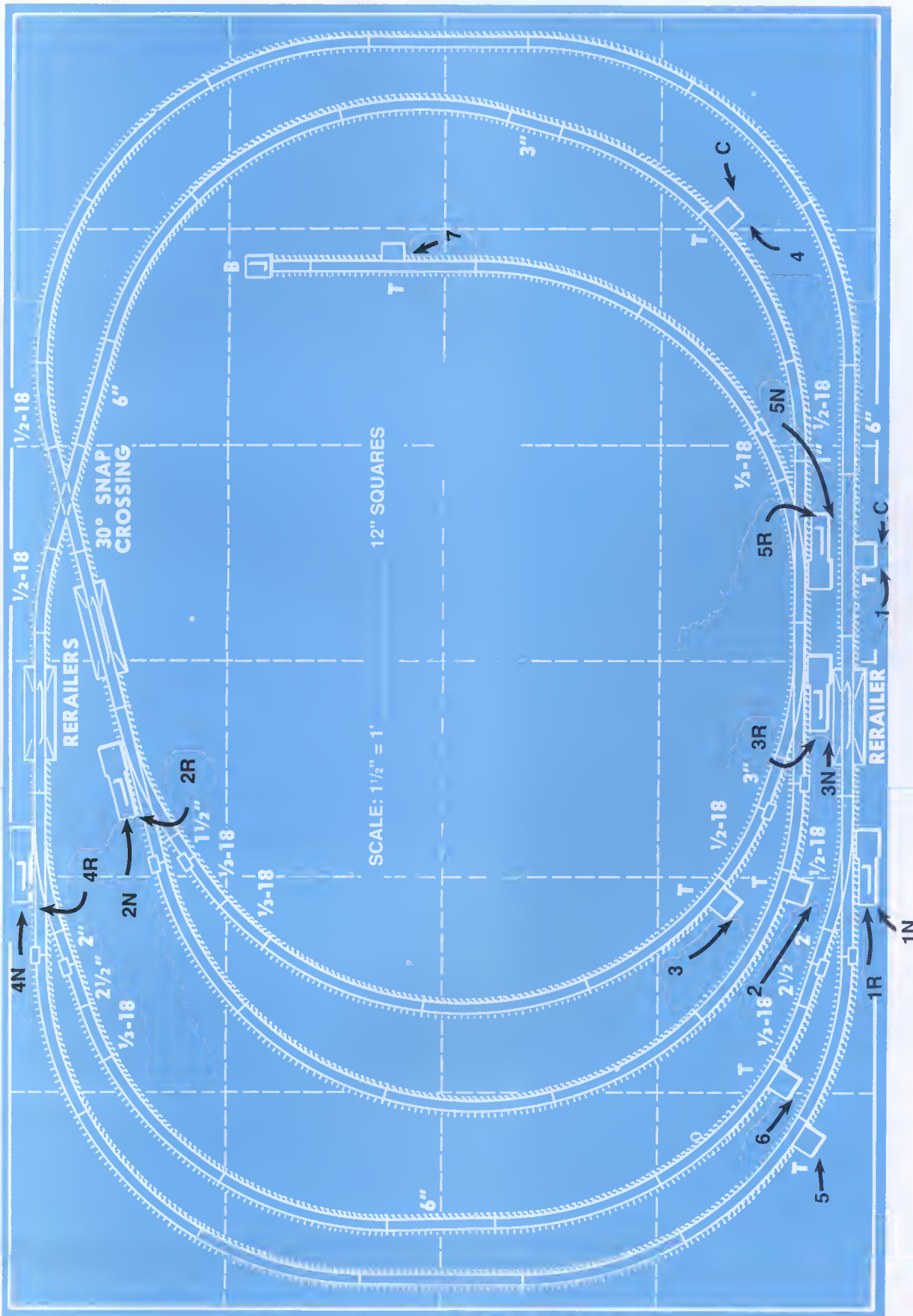
A twice-around plan lets you get double the length of main line in a given space. This track plan and Layout HO-5, which follows, use this basic scheme in 4 x 6-foot and 4 x 8-foot spaces, respectively. Both use the same wiring diagram. You will want to use scenic items such as buildings, fences and trees between the two laps of the main line to help create the impression that the train is covering different territory in its second trip around the layout. (See Section 4, P.42)

Wiring Tip: Please note that there is more than one common (c) connection in the layout diagram. To avoid loose ends, wires should be led through a hole in the table top, the ends stripped of insulation, and twisted tightly together. The common wire from the power pack should then be twisted with the two others, soldered and taped. More detail on wire soldering techniques can be found in *The Complete Atlas Wiring Book*, Atlas Item # 12.

ATLAS Track* Products required for LAYOUT HO-4

Item #	Item	Qty.
#150	9" Straight Section	2
#152	Full Section-18" radius	26
#822	6" Straight Section	3
#823	3" Straight Section	2
#834	Half Section-18" radius	5
#835	Third Section-18" radius	5
	(Included with Snap-Switches-purchase none)	
#839	30° Snap Crossing	1
#840	Straight Terminal	2
#843	Bumper	1
#844	Rerailer	3
#845	18" Radius Terminal	5
#847	Straight Track Assortment	1
#850	Snap-Switch-Remote (Left)	3
#851	Snap-Switch-Remote (Right)	2
#55	Insulating Rail Joiners	1 pkg.
#215	Selector	2
#2540	Track Nails	1 pkg.

*Atlas track products are available in black or brown ties with nickel silver rail.



LAYOUT HO-5

The Senior Twice-Around

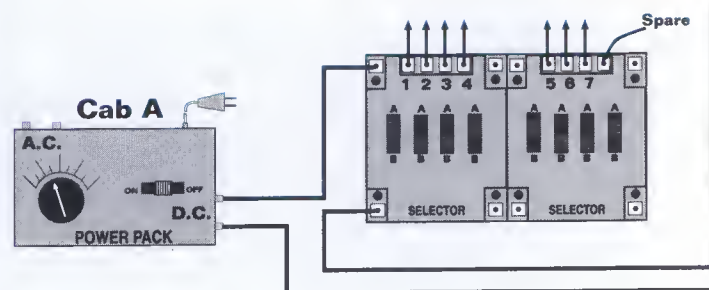
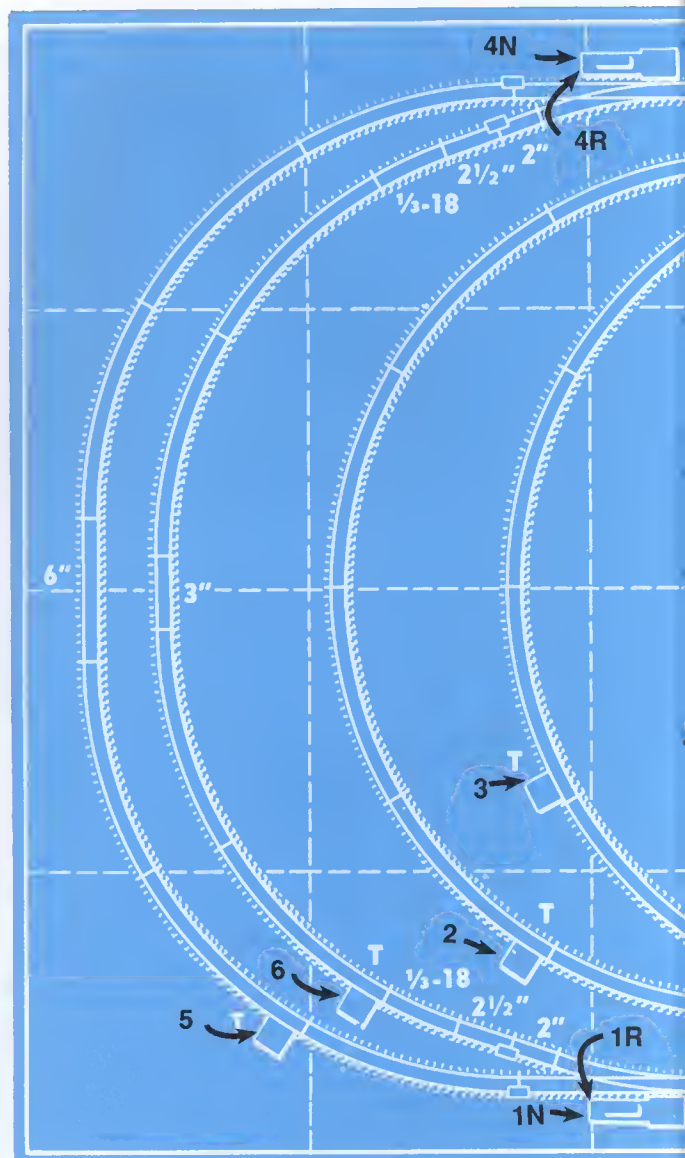
This plan is a lengthened HO-4 with an additional siding. The extra two feet allows longer trains and longer runs.

NOTE: When building this layout, refer to *Wiring Note* on P. 24.

ATLAS Track* Products required for LAYOUT HO-5

Item #	Item	Qty.
#150	9" Straight Section	11
#152	Full Section-18" radius	27
#822	6" Straight Section	4
#823	3" Straight Section	1
#834	Half Section-18" radius	4
#835	Third Section-18" radius	6
	(Included with Snap-Switches- purchase none)	
#839	30° Snap Crossing	1
#840	Straight Terminal	3
#843	Bumper	2
#844	Rerailer	2
#845	18" Radius Terminal	4
#847	Straight Track Assortment	1
#850	Snap-Switch-Remote (Left)	3
#851	Snap-Switch-Remote (Right)	3
#55	Insulating Rail Joiners	1 pkg.
#215	Selector	2
#2540	Track Nails	1 pkg.

*Atlas track products are available in black or brown ties with nickel silver rail.



LAYOUT HO-6

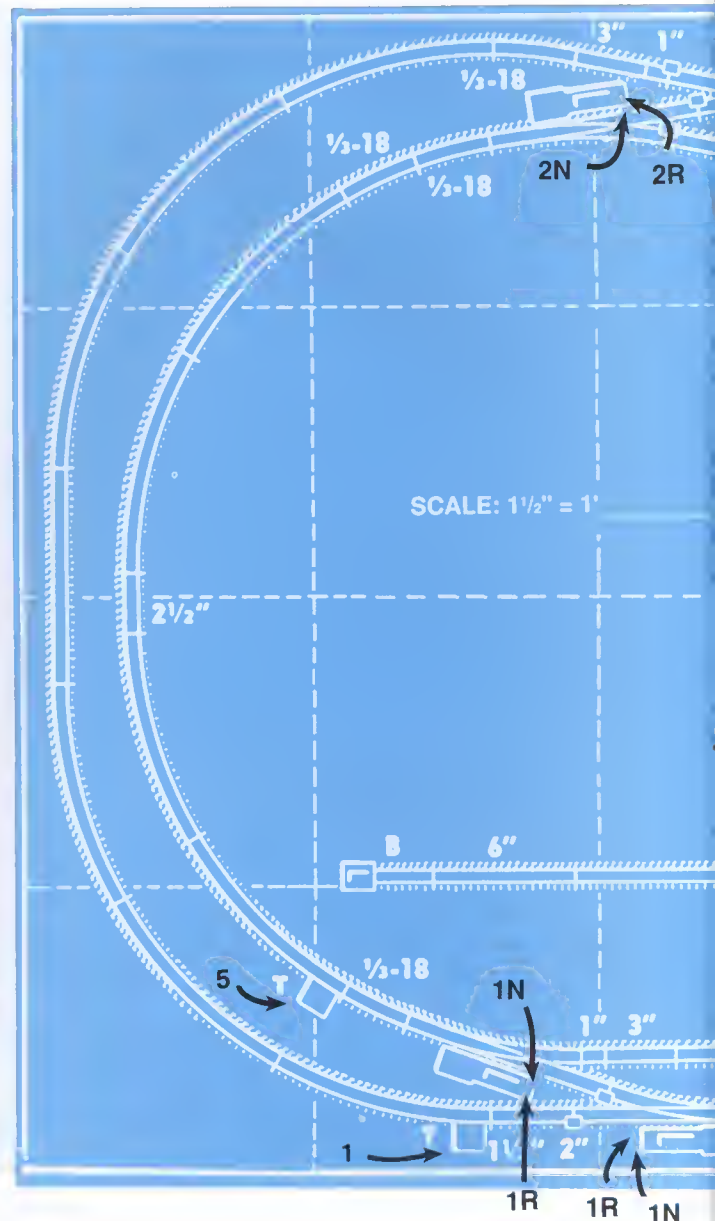
The Trunk Line

This 4 x 8-foot railroad features a double-track main line on which long trains can operate continuously. Usually you will have one train running in each direction, using the right-hand track. Switching the spur tracks adds variety. For further operating fun, two trains can follow each other around one of the tracks. By using the cross-overs between the main lines, the faster train can be routed around its slower companion.

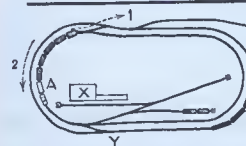
ATLAS Track* Products required for LAYOUT HO-6

Item #	Item	Qty.
#150	9" Straight Section	20
#152	Full Section-18" radius	20
#822	6" Straight Section	5
#823	3" Straight Section	3
#835	Third Section-18" radius	.9
	(8 included with Snap-Switches-purchase 1)	
#840	Straight Terminal	5
#843	Bumper	4
#844	Rerailer	3
#845	18" Radius Terminal	2
#847	Straight Track Assortment	1
#850	Snap-Switch-Remote (Left)	4
#851	Snap-Switch-Remote (Right)	4
#55	Insulating Rail Joiners	1 pkg.
#215	Selector	2
#2540	Track Nails	1 pkg.

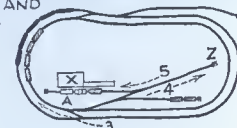
*Atlas track products are available in black or brown ties with nickel silver rail.



FEATURED OPERATION



ONE OF THE INTERESTING OPERATIONS ON THIS LAYOUT IS SETTING OUT A CAR ON THE SWITCHBACK SIDING. SUPPOSE A FREIGHT IS TO SPOT CAR A AT THE PLANT X FOR LOADING, LEAVING THE TRAIN BETWEEN THE CROSSOVERS AT THE LEFT SIDE OF THE LAYOUT. ITS LOCOMOTIVE (AS SOON AS THE EXPRESS ON THE OUTER TRACK HAS PASSED) TAKES THE CROSS-OVER TO THE LEFT-HAND TRACK (1), BACKS ALONGSIDE ITS TRAIN (2) TO Y AND COUPLES UP TO THE CABOOSE (3). THIS LEAVES THE OUTER LOOP CLEAR FOR THE EXPRESS AS THE FREIGHT'S LOCOMOTIVE PULLS THE CABOOSE AND CAR A BACK INTO THE LONG SPUR (4). CAR A IS PUSHED INTO THE PLANT SIDING AND UNCOUPLED; THE ENGINE THEN RETURNS TO ITS TRAIN BY A REVERSE PROCESS.



LAYOUT HO-7

The Junior Pretzel

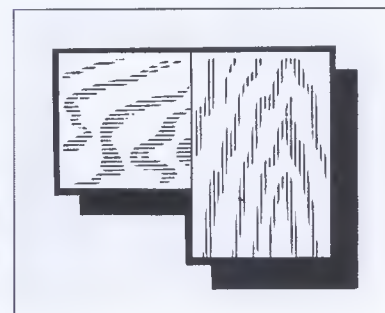
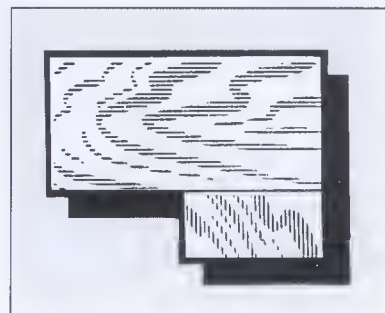
Many possibilities - longer runs, longer trains and more realistic operations - open up when you expand beyond the limits of a single piece of plywood. This layout can be built by expanding a 4 x 8-foot platform, in which case you add a 2 x 4-foot section, as shown in the top diagram.

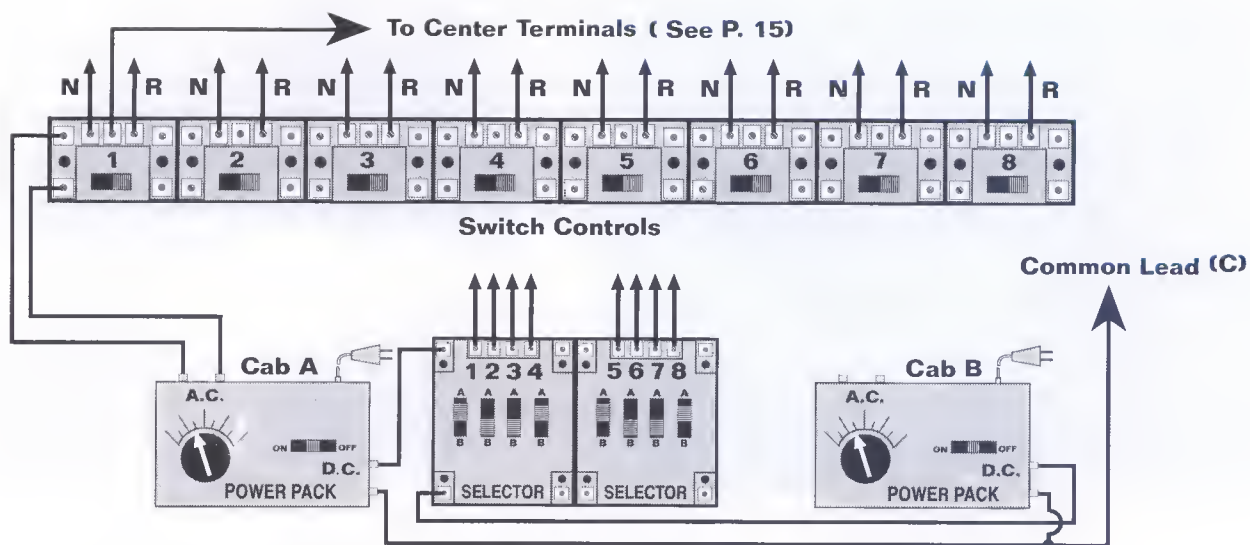
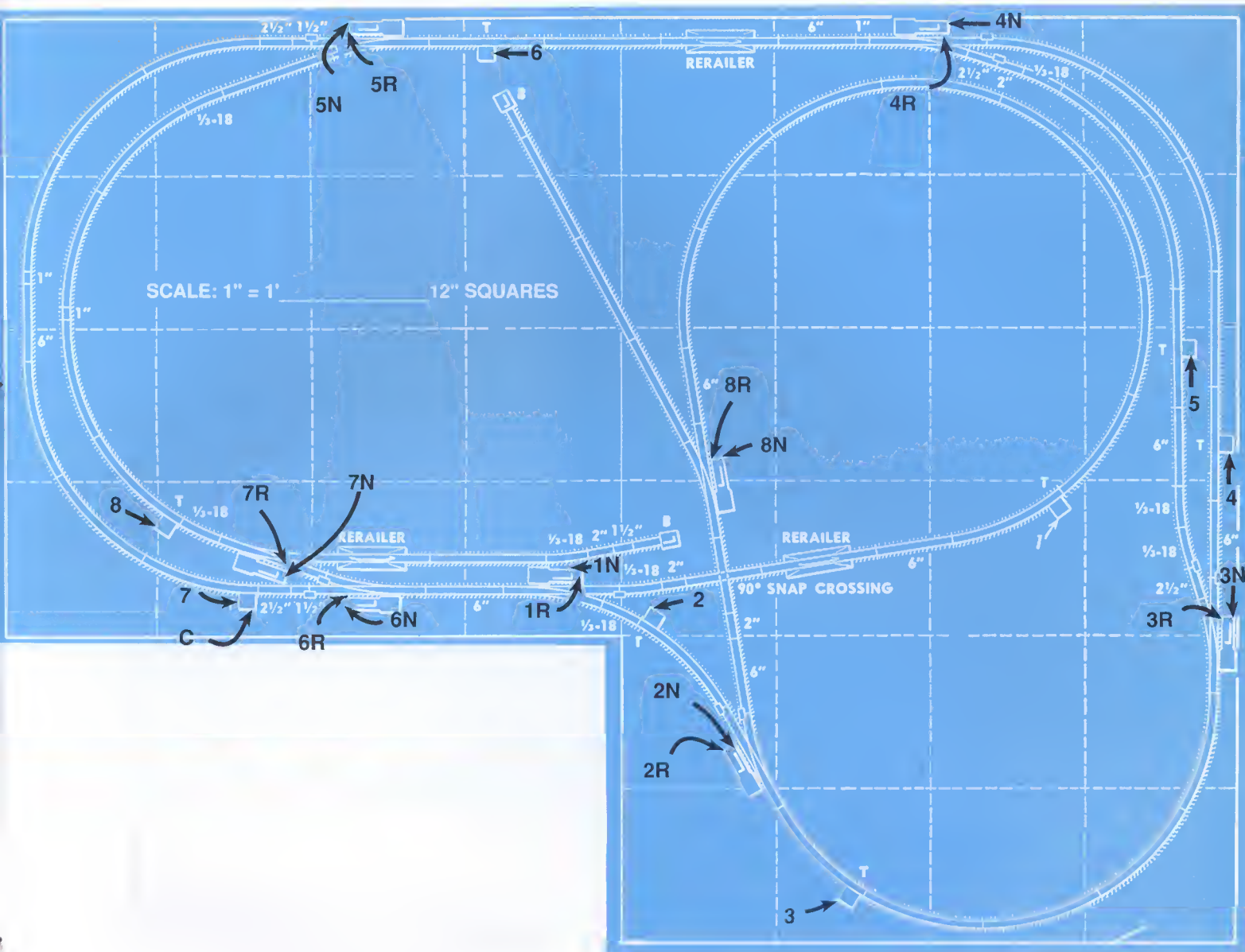
It can also be built as the second stage of a 4 x 6-footer (by adding a 4 x 4-foot section) or starting from scratch. In this case, the two sections will be arranged differently, as shown in the bottom diagram. The open spaces of this railroad lend themselves to town planning and construction. With the wide variety of structure kits available from Atlas, trackside buildings, stores, homes and more, it is now easy to detail your railroad's surroundings.

ATLAS Track* Products required for LAYOUT HO-7

Item #	Item	Qty.
#150	9" Straight Section	7
#152	Full Section-18" radius	25
#176	90° Crossing	1
#822	6" Straight Section	8
#835	Third Section-18" radius (Included with Snap-Switches- purchase none)	8
#840	Straight Terminal	3
#843	Bumper	2
#844	Rerailer	3
#845	18" Radius Terminal	5
#847	Straight Track Assortment	1
#850	Snap-Switch-Remote-Left	4
#851	Snap-Switch-Remote-Right	4
#55	Insulating Rail Joiners	1 pkg.
#215	Selector	2
#2540	Track Nails	1 pkg.

*Atlas track products are available in black or brown ties with nickel silver rail.





LAYOUT HO-8

The Super Pretzel

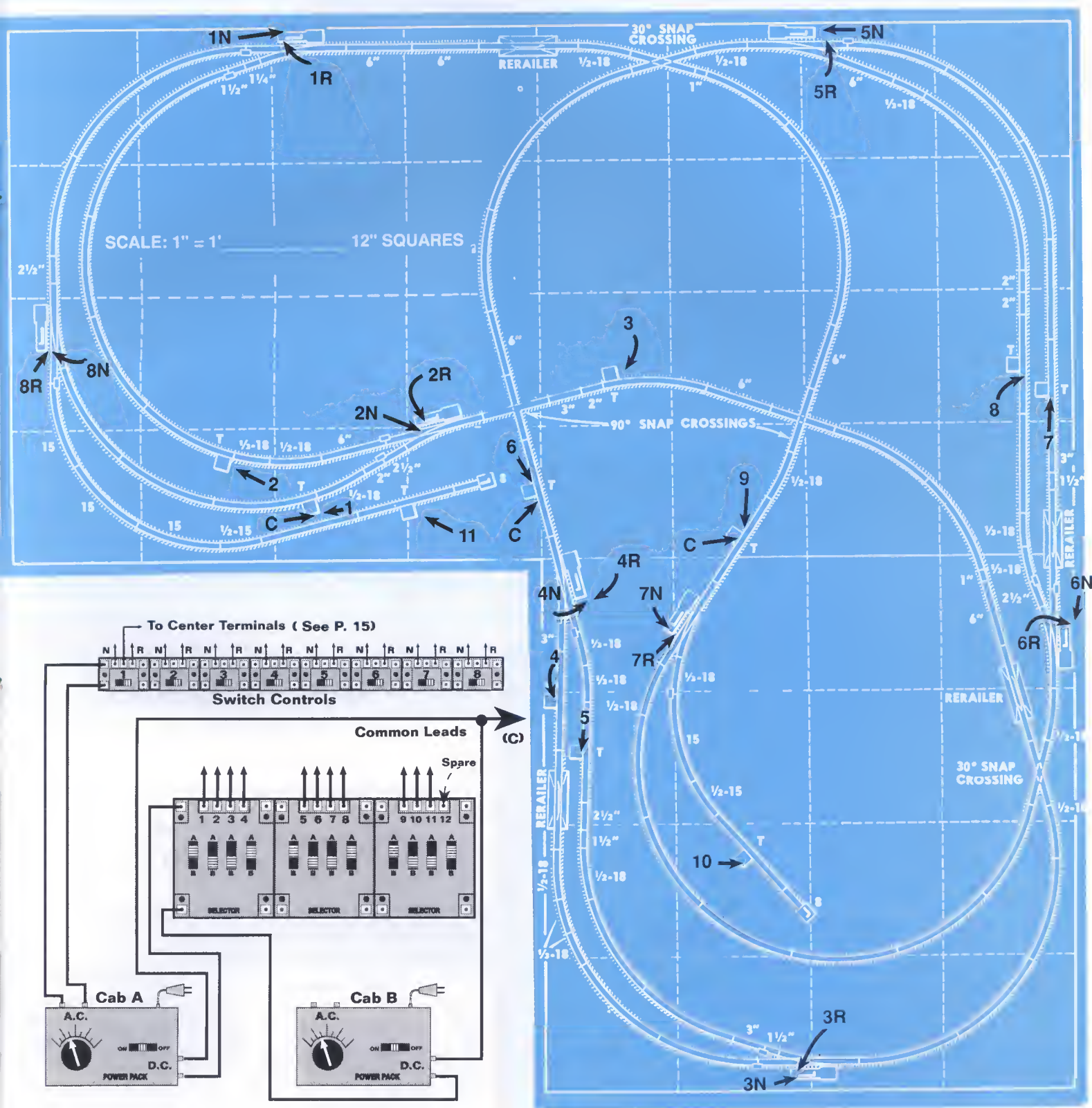
With the additional space that comes from adding a 4 x 4-foot section to the basic 4 x 8-foot, a very long main line with three passing tracks can be accommodated. When two trains are running on this layout, each engineer will find continuing variety as he makes successive trips over the railroad. Not only will he meet the other train at different points, but the four crossings will result in an ever-changing pattern of avoiding collisions while staying on schedule.

On a line of this length you will find it practical and interesting to work out a simple timetable, first for two trains running in opposite directions, then later for two trains following each other, with the faster one overtaking and passing the slower at the different sidings. Once accomplished, you can begin picking up and setting out cars on the spur tracks without delaying the scheduled train by blocking the main track.

ATLAS Track* Products required for LAYOUT HO-8

Item #	Item	Qty.
#150	9" Straight Section	3
#151	Full Section-15" radius	4
#152	Full Section-18" radius	35
#176	90° Crossing	2
#822	6" Straight Section	8
#823	3" Straight Section	4
#832	Half Section-15" radius	2
#834	Half Section-18" radius	10
#835	Third Section-18" radius	9
	(8 Included with Snap-Switches-purchase 1)	
#839	30° Snap Crossing	2
#840	Straight Terminal	8
#843	Bumper	2
#844	Rerailer	4
#845	18" Radius Terminal	3
#847	Straight Track Assortment	1
#850	Snap-Switch-Remote (Left)	5
#851	Snap-Switch-Remote (Right)	3
#55	Insulating Rail Joiners	1 pkg.
#215	Selectors	3
#2540	Track Nails	1 pkg.

*Atlas track products are available in black or brown ties with nickel silver rail.



LAYOUT HO-9

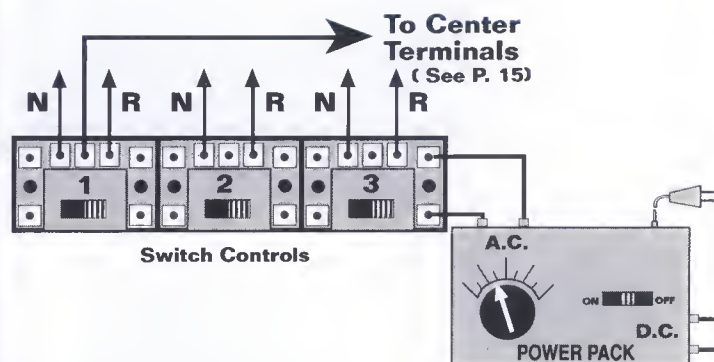
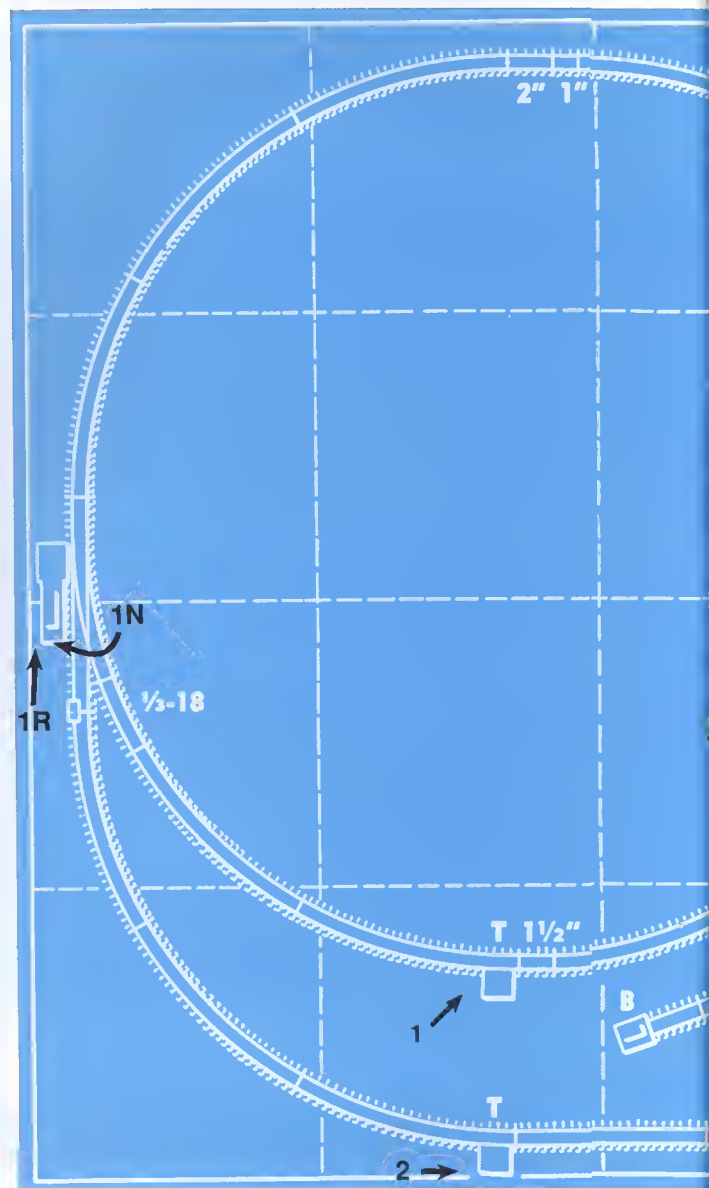
Figure 8 with Spurs

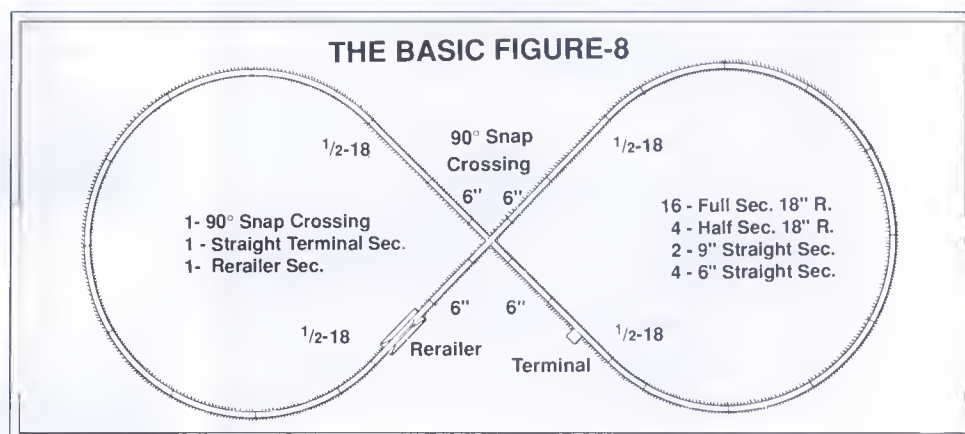
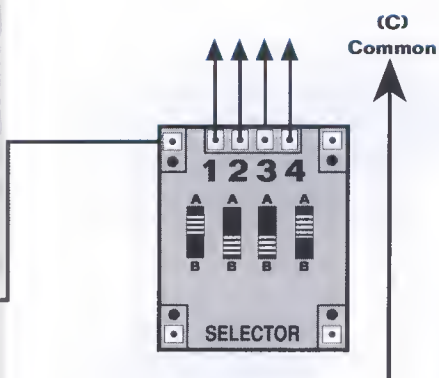
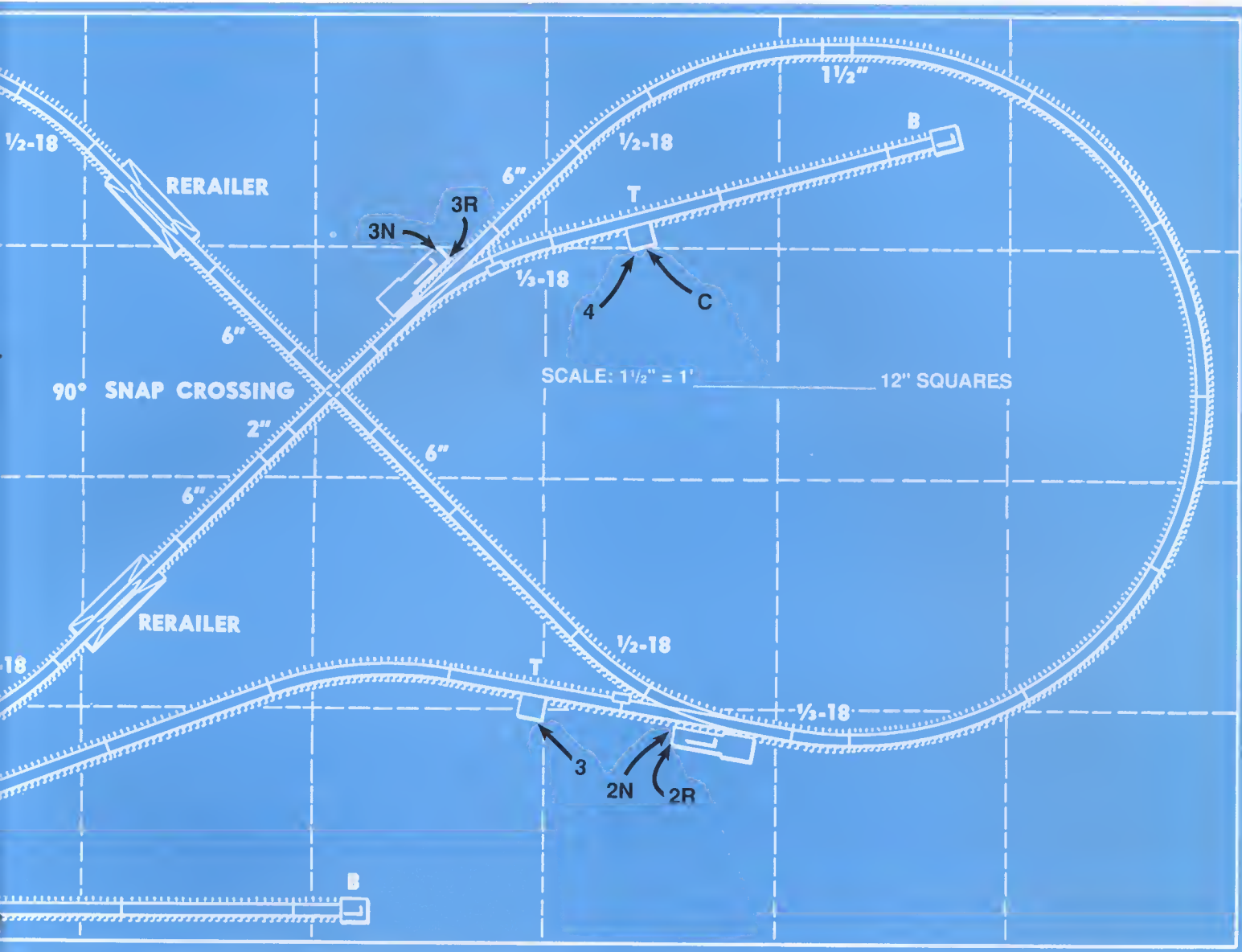
The Basic Fig.-8 plan makes an interesting operation because of the way it appears to reverse its direction as it proceeds. This layout adds three spur tracks to serve local industries and keep a local freight train busy. Located as indicated on a 4 x 8-foot tabletop, this layout is readily converted into the more elaborate out-and-back plan of Layout HO-11. Insulated rail joiners and separate electrical control of the spurs permit holding one engine in a spur while a second train operates on the main track.

ATLAS Track* Products required for LAYOUT HO-9

Item #	Item	Qty.
#150	9" Straight Section	7
#152	Full Section-18" radius	16
#176	90° Crossing	1
#822	6" Straight Section	4
#834	Half Section-18" radius	4
#835	Third Section-18" radius (included with Snap-Switches- purchase none)	3
#840	Straight Terminal	2
#843	Bumper	3
#844	Rerailer	2
#845	18" Radius Terminal	2
#847	Straight Track Assortment	1
#850	Snap-Switch Remote (Left)	1
#851	Snap-Switch Remote (Right)	2
#55	Insulating Rail Joiners	1 pkg.
#215	Selector	1

*Atlas track products are available in black or brown ties with nickel silver rail.





LAYOUT HO-10

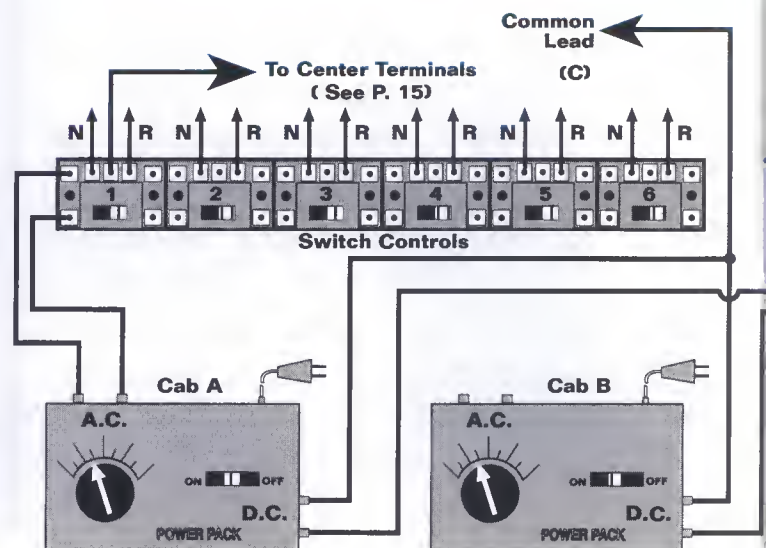
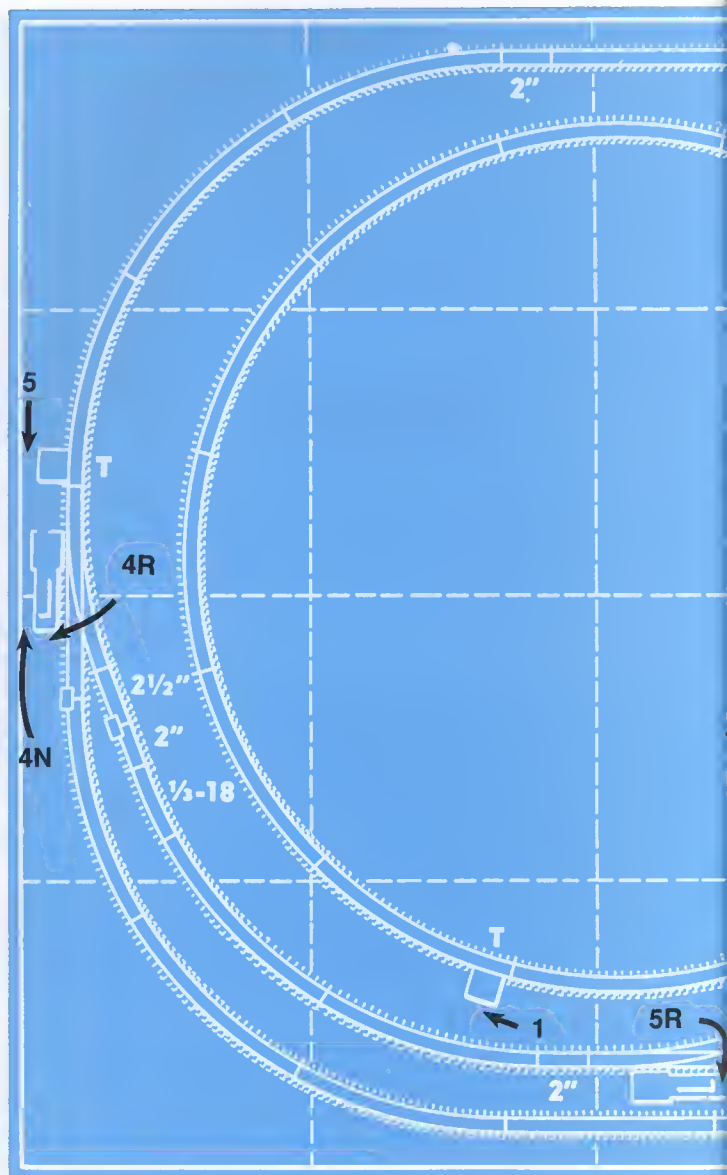
The Yardmaster

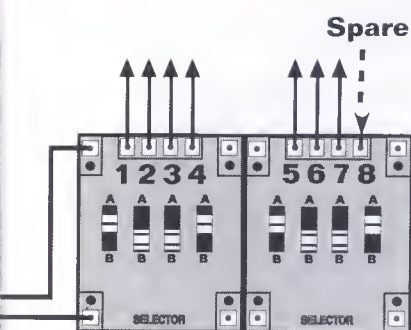
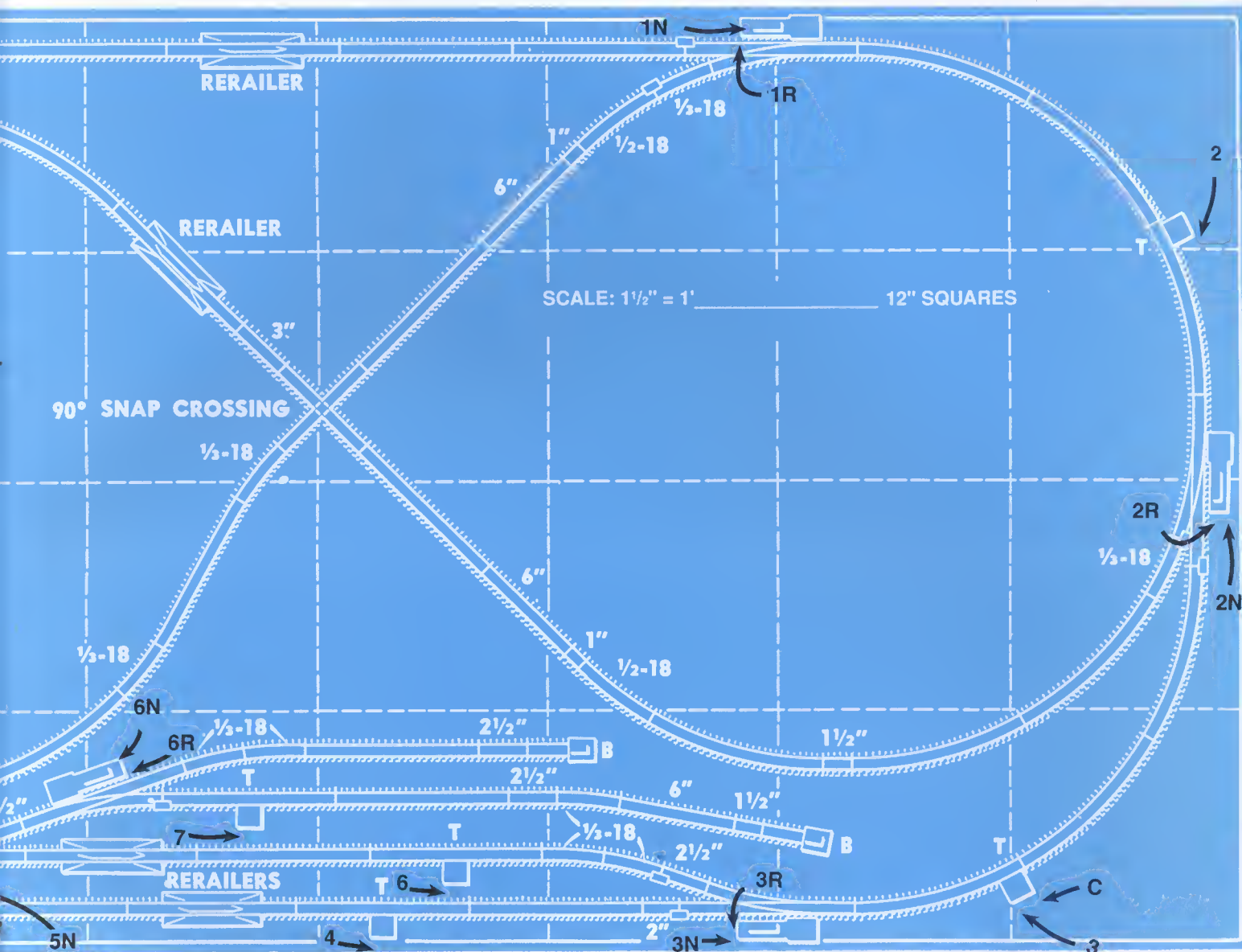
This track plan can be derived from HO-9 with a minimum of track relocation. In operation, however, it is much different from the out-and-back scheme of Layout HO-11. Although it looks as though a train traversing the inner loop is reversing its direction, there is no reversing loop in the electrical sense. The four-track yard is of the through rather than single-ended type. If you prefer main line operation, you'll have fun running this railroad.

ATLAS Track* Products required for LAYOUT HO-10

Item #	Item	Qty.
#150	9" Straight Section	13
#152	Full Section-18" radius	22
#176	90° Crossing	1
#822	6" Straight Section	3
#823	3" Straight Section	1
#834	Half Section-18" radius	2
#835	Third Section-18" radius	10
	(6 included with Snap-Switches-purchase 4)	
#840	Straight Terminal	3
#843	Bumper	2
#844	Rerailer	4
#845	18" Radius Terminal	4
#847	Straight Track Assortment	2
#850	Snap-Switch-Remote (Left)	3
#851	Snap-Switch-Remote (Right)	3
#55	Insulating Rail Joiners	1 pkg.
#215	Selector	2
#2540	Track Nails	1 pkg.

*Atlas track products are available in black or brown ties with nickel silver rail.

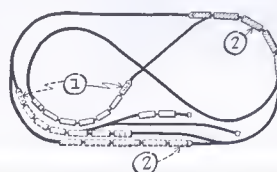




FEATURED OPERATION

THIS LITTLE YARD IS COMPLETE WITH A SWITCHING LEAD ON WHICH A LOCOMOTIVE ① CAN WORK WHILE CLASSIFYING CARS. IF SHORT 'CUTS' ARE BEING HANDLED, THE MAIN TRACK CAN BE KEPT CLEAR FOR THROUGH TRAIN ② WHILE SWITCHING MOVEMENTS ARE MADE INTO AND OUT OF THE YARD TRACKS.

AS THE TASK OF ASSEMBLING A TRAIN NEARS COMPLETION THE SWITCHER WILL OCCASIONALLY HAVE TO FOUL THE MAIN TRACK, GIVING YOU THE INTERESTING PROBLEM OF SYNCHRONIZING ITS MOVEMENTS SO AS NOT TO DELAY THE THROUGH TRAIN AS IT MAKES A TWO-LAP CIRCUIT OF THE MAIN LINE.



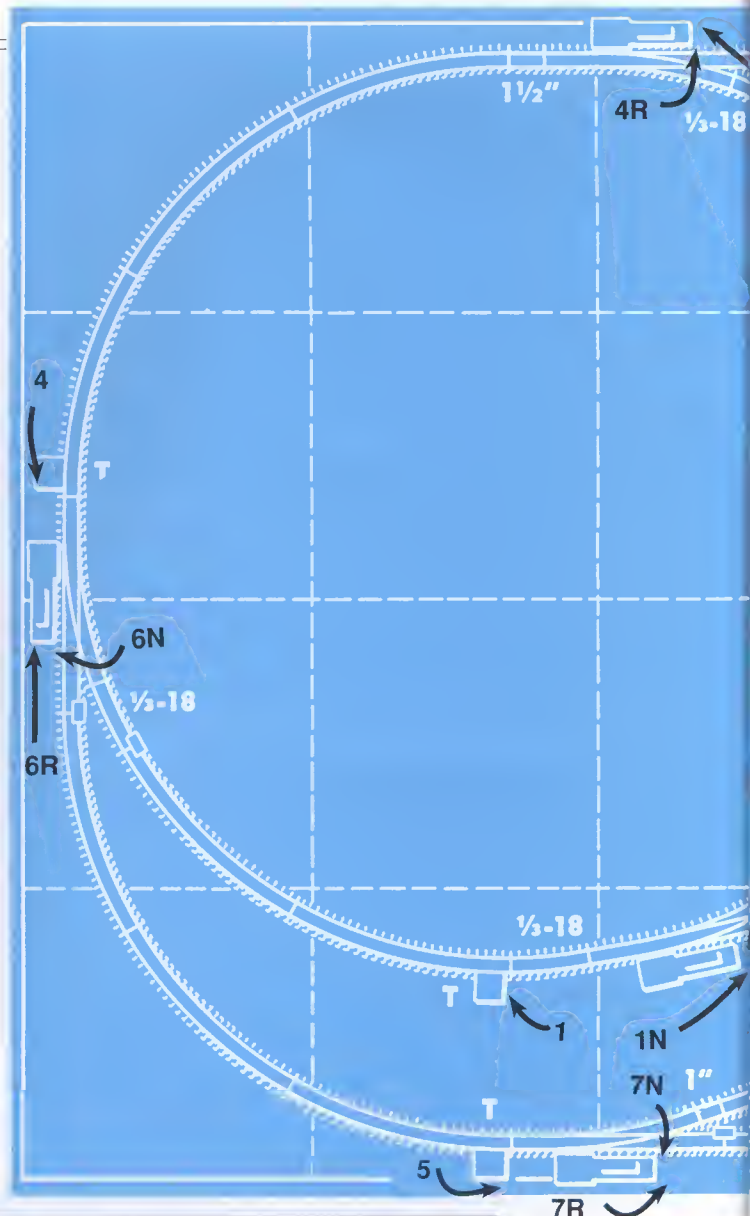
WHEN THE YARD WORK IS DONE, ENGINE ① MOVES ITS TRAIN OUT ONTO THE MAIN LINE. WITH SKILLFUL SCHEDULING, BOTH TRAINS CAN THEN RUN WITHOUT INTERRUPTION IF THE CENTER FIGURE-8 IS USED AS A PASSING TRACK.

LAYOUT HO-11

The Out-And-Back

This 4 x 8-foot layout lets you carry out in miniature the process of sorting freight cars and making up a train in the yard track. A second train, circling the main line, can operate in clockwise or counterclockwise direction at will, because this plan includes reversing loops and sections.

When the train in the yard is ready to depart, the main line train goes through the reversing loop, if necessary, and continues into the yard. As soon as this train clears switch No. 7, the departing train may proceed out of the yard onto the main line. The job of sorting the cars of the inbound train now begins. The double-ended track in the yard, termed a "runaround" track, enables a locomotive to run around its cars and proceed to sort them out. When the cars are in proper order for departure, the engine couples-up and is ready to leave the yard.

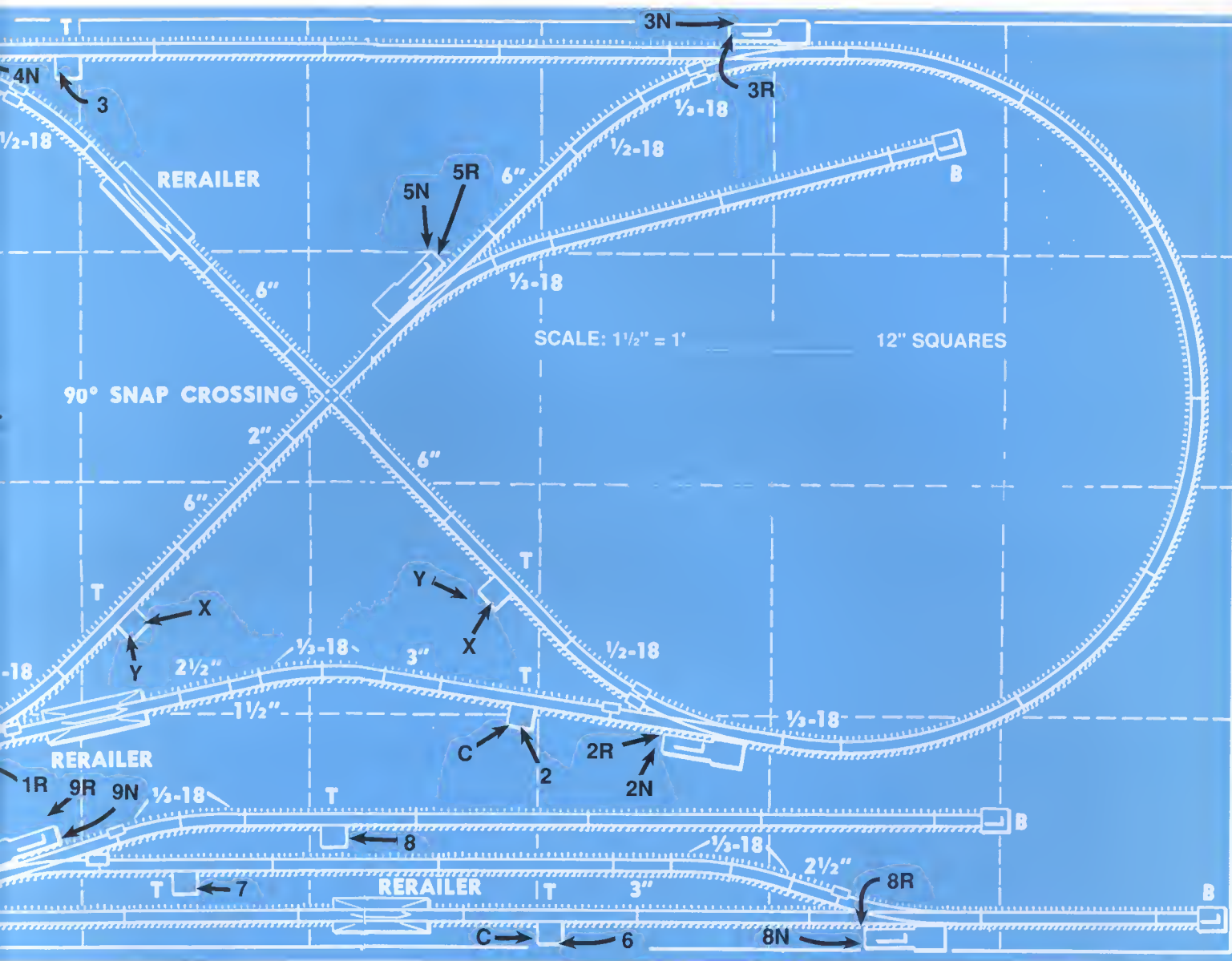


ATLAS Track* Products required for LAYOUT HO-11

This Layout may be converted from LAYOUT HO-9

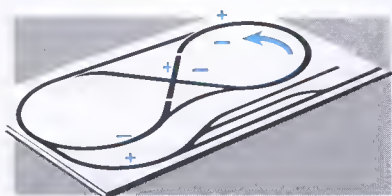
Item #	Item	Qty.	Conver.	Item #	Item	Qty.	Conver.
#150	9" Straight Section	14	7	#844	Rerailer	3	1
#152	Full Section-18" radius	11	—	#845	18" Radius Terminal	3	1
#176	90° Crossing	1	—	#847	Straight Track Assortment	1	—
#822	6" Straight Section	4	—	#850	Snap-Switch Remote (Left)	4	3
#823	3" Straight Section	2	2	#851	Snap-Switch Remote (Right)	5	3
#834	Half Section-18" radius	4	—	#55	Insulating Rail Joiners	1 pkg	—
#835	Third Section-18" radius (9 included with Snap-Switches-purchase 3)	12	8	#215	Selector	2	1
#840	Straight Terminal	7	5	#220	Controller	1	1
#843	Bumper	3	—	#2540	Track Nails	1 pkg.	—

*Atlas track products are available in black or brown ties with nickel silver rail.

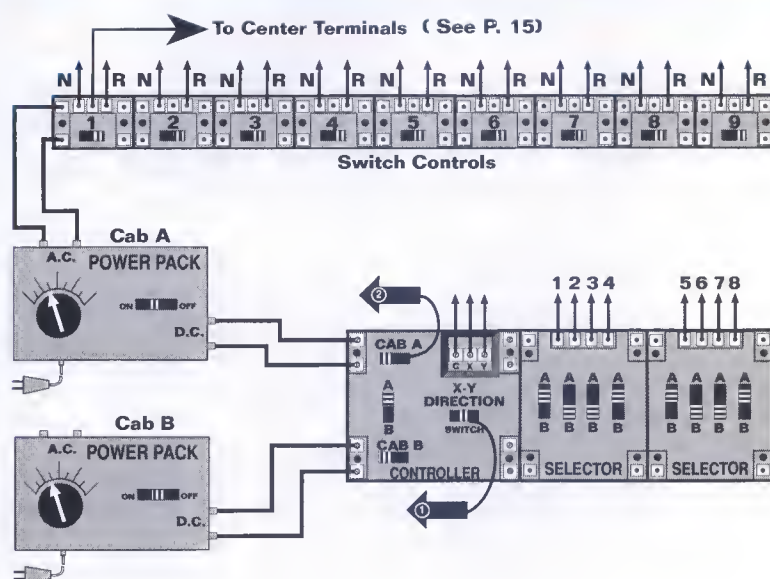
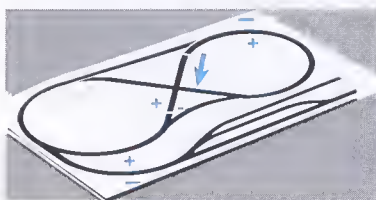


USING THE REVERSING TRACKS

- AS TRAIN APPROACHES REVERSING SECTION, SLIDE REVERSING SWITCH BUTTON ON CONTROLLER IN DIRECTION IN WHICH TRAIN WILL PASS THROUGH REVERSING TRACK (LEFT TO RIGHT IN THIS CASE).



- WHEN TRAIN IS ENTIRELY WITHIN REVERSING TRACK, THROW REVERSE SWITCH CONTROLLING MAIN LINE DIRECTION. TRAIN CAN THEN PROCEED SMOOTHLY BACK ONTO MAIN LINE, WITH ITS DIRECTION STILL IN AGREEMENT WITH TRACK POLARITY.



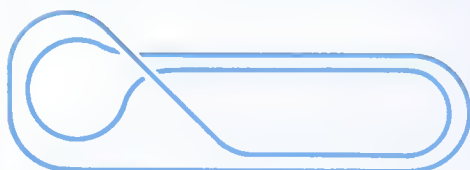
LAYOUT HO-12

The Up-And-Over Dogbone

A popular scheme for arranging the main line trackage of larger model railroads is the loop-to-loop or "dogbone" pattern:



To get the track into the space available and at the same time provide the extra interest of up-and-over operation, the basic dogbone can be twisted over onto itself, with one end of the "bone" crossing the shank near the other loop. We then find that a much longer main line can be fitted into a reasonably small area:



This track plan uses the twisted dogbone pattern to provide a run of approximately 50 feet (almost a mile in HO scale) in the space of two 4 x 6-foot panels. There are two long passing tracks, so two trains can be kept in nearly continuous operation as they traverse the main line in opposite directions. To vary the scene, one of the trains can head through a crossover on the double-track section at the lower left and thus reverse its direction. You then have the different challenge of keeping two following

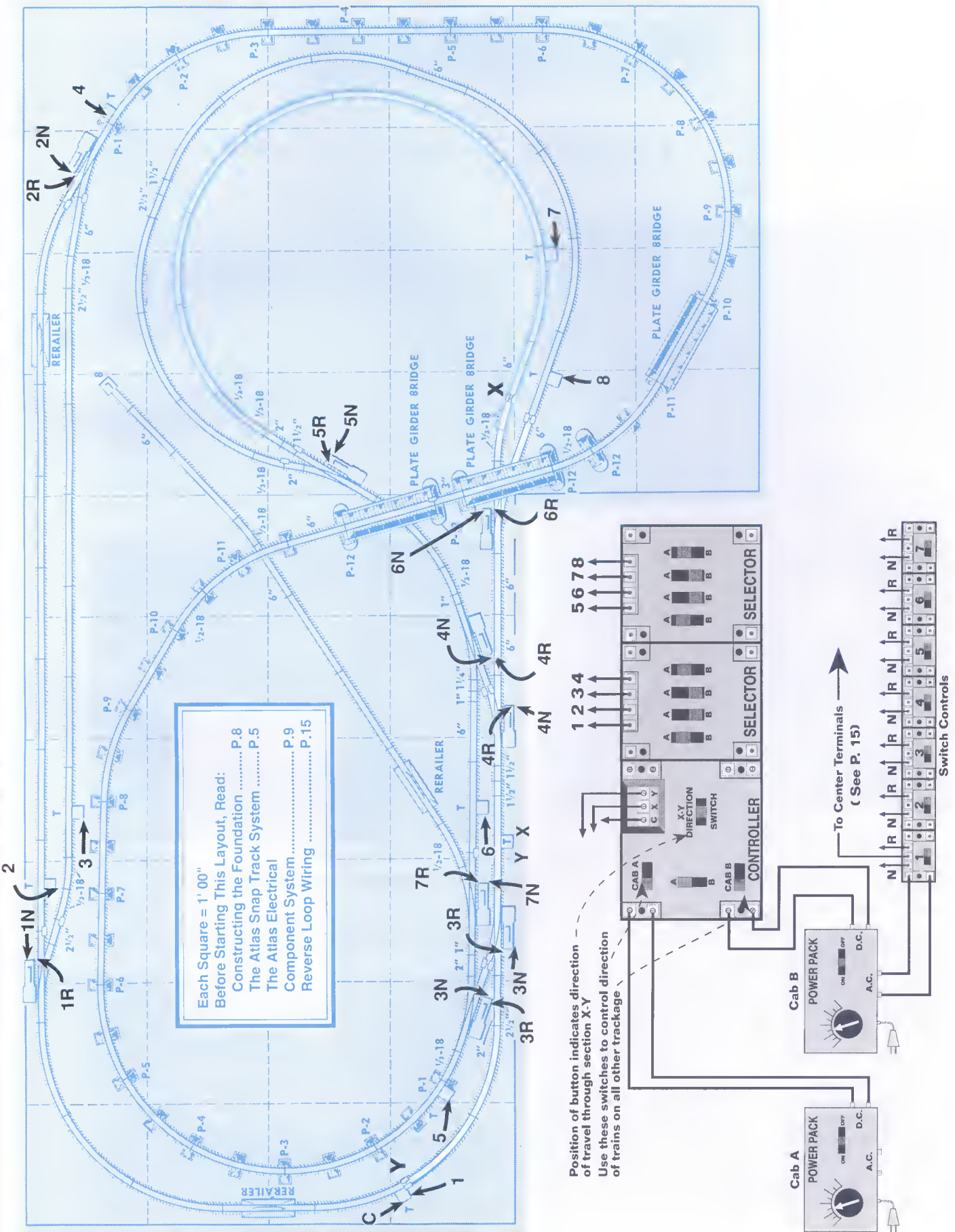
trains apart and on schedule, with the faster occasionally overtaking its slower companion at one of the passing tracks. With the Atlas Controller hooked up as shown, the reversing loop polarity is taken care of by setting the slide switch

to match train directions as indicated. When you have a railroad like this in operation, you'll want to take advantage of the available space to add spur tracks of your own. Tips for this are given on p. 7.

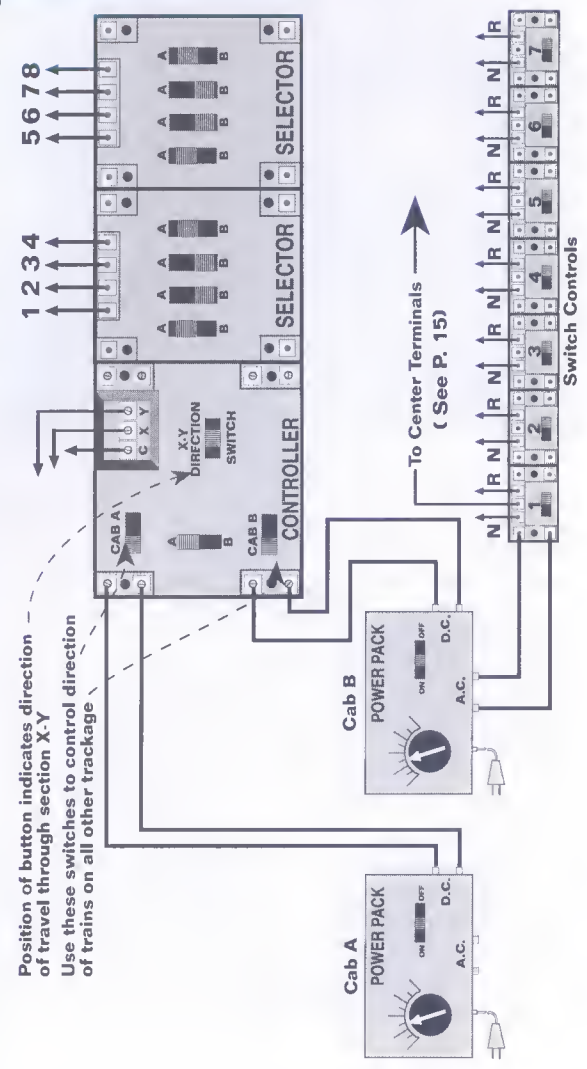
ATLAS Track* Products required for LAYOUT HO-12

Item #	Item	Qty.
#150	9" Straight Section	19
#152	Full Section-18" radius	35
#822	6" Straight Section	10
#823	3" Straight Section	1
#834	Half Section-18" radius	3
#835	Third Section-18" radius	11
	(9 included with Snap-Switches-purchase 2)	
#840	Straight Terminal	5
#843	Bumper	1
#844	Rerailer	3
#845	18" Radius Terminal	4
#847	Straight Track Assortment	2
#850	Snap-Switch Remote (Left)	5
#851	Snap-Switch Remote (Right)	4
#55	Insulating Rail Joiners	1 pkg.
#80	Pier Set	1
#81	3" Bridge Pier	3
#885	Plate Girder Bridge	3
#215	Selector	2
#220	Controller	1
#2540	Track Nails	1 pkg.

*Atlas track products are available in black or brown ties with nickel silver rail.



Position of button indicates direction of travel through section X-Y. Use these switches to control direction of trains on all other trackage.



SECTION 4

Finishing Touches

Creating scenery can be the easiest and most enjoyable aspect of model railroading. It allows you to let your creative instincts run wild, yet requires no special artistic ability. Especially educational for the young, creating scenery brings to the model railroading experience the study of geography, geology, history and other skills. Virtually any part of the world can be the setting for your layout. Let's start from the bottom up with roadbed and ballast.

Roadbed

Real railroads elevate their mainline track a few feet above the ground to prevent flooding and allow drainage. Crushed rock forms the bed for the track and is called ballast. The same effect can be created on your railroad with roadbed and spray paint after you have created your tabletop and are ready to lay the track.

If you have decided against the use of roadbed, disregard this section and proceed to fasten the track permanently to the table top using Atlas track nails. Be sure that the plastic rail joiners have been first placed in their proper locations according to the track plan. If you decide to use roadbed, fasten your track only temporarily to the tabletop, leaving most of each track nail exposed.

Model railroad roadbed comes in two types - split or one piece. These are installed differently. For either split-cork or Atlas' rubber roadbed (which comes as a strip so that putting two strips together makes one piece of roadbed), the tabletop must be marked with a soft pencil for the location of the roadbed. Remember to mark the centerlines of all track and switches. If you are using a one-piece roadbed, outline the track by

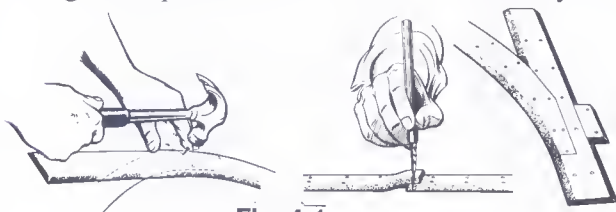


Fig. 4-1

marking the table at the outside of the ties. Be sure to outline all track, switches and crossings.

Now, pull up the temporary nails, disassemble the trackage into chunks as big as you can conveniently handle and lay it aside for the moment.

Install the roadbed using your marked pencil lines as a reference and secure the roadbed to the tabletop with 5/8" or 3/4" flat head nails. Use a double row of nails spaced 2-3" apart. Each succeeding piece is overlapped about 1/2", then trimmed together using a sharp modeler's knife (Fig. 4-2). Afterward, replace and reassemble the track on top of the roadbed, checking alignment and fastening with track nails. Then you are ready to paint on the ballast.



Fig. 4-2

Ballast from a Spray Can

For your safety: Always use aerosol paint products in a well-ventilated area, away from heat and flames.

We suggest the use of spray paint for several reasons. While some experienced modelers choose real crushed rock for their ballast, this substance can dislodge and work its way into the switch points, as can the glue used to set the rock.

The easy way, which turns out quite realistic, is to layer several colors of flat finish spray paint. Suggested colors are medium grey, black, rust, dark

brown, light brown, grass green and dark green. First, spray both rails and ties with a very light coat of rust. Next, hold an envelope against the sides of the rails to keep any additional paint off and spray along the edges of the track with medium grey. Used too much? Simply go over the area again with a light sweep of the rust. Next, mist on some flat black, holding the can at least two feet away from the track so the paint falls over the entire track area. (Shown Below)

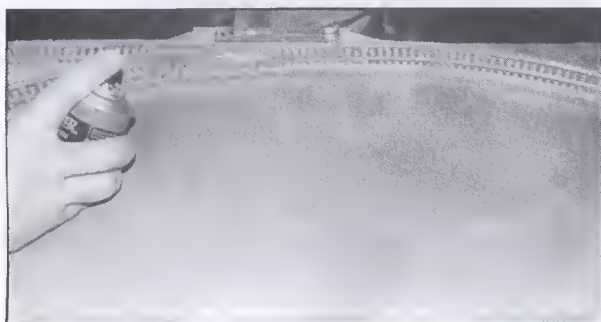


Fig. 4-3

Finally, use a track eraser to rub away all traces of paint from the tops of the rails and upper edges of the switch points. The remainder of your tabletop can be sprayed with shades of grass green. Simulate dirt roads with light brown or beige paint. For blacktop, mask the edges of the road and spray it flat black, then mist on some medium grey.

Structures and Bridges

With your groundcover freshly dry, you'll want to increase visual interest and realism in your layout with homes, towns and/or city buildings. Atlas currently makes over 20 different trackside structure kits in HO Scale, including a realistic passenger station, a lumber yard, contemporary homes, and a mini-mall!

Atlas kits are plastic and assembled using tube-type plastic cement for the major joints and liquid cement for plastics (when adding windows and small details.) All come in appropriate colors, or you can have fun painting them yourself, combining kits and adding unique embellishments to make them truly your own. This process of customizing your structures is known as "kitbashing" among model railroad aficionados.

Unpainted structures look painted when sprayed with clear flat paint. Spray them before installing the clear plastic windows, as clear flat will "frost" the windows. If you pre-paint the windows, roofs

and trim before installation, use a hobby-type cyanoacrylate cement.

You can choose from five different HO bridge styles produced by Atlas, some of which are described in detail in the layouts in this book. Whether used with an Atlas Pier Set or right on your tabletop over a painted river, bridges extend and enhance the action of your railroad.



Fig. 4-4

Bridges add depth, action and interest to your layout. These two photos offer different views of an HO Pony Truss Bridge.

Landscaping

Parts of the tabletop may be removed to create river valleys and lower land forms. Use an electric saber saw to cut through the plywood tabletop. Mark the lines for the edges of your valley. Drill a 3/8" hole in one corner of the lines, creating a place to insert the blade of the saber saw. Hold the saw firmly against the tabletop or track to minimize vibrations. If you need to, remove some of the wood grid pieces from beneath your layout until you saw across them.

Do not notch the 1" x 2" or 1" x 4" grid boards to clear the stream - consider those areas to be the shallow end of the valley. Run masking tape across

the valley in a small grid pattern. Soak small pieces of paper towel in a "soupy" mixture of plaster and water. Flatten and place paper pieces over the masking tape grid. When thoroughly dry, paint to suit.

Plastic Water

Plastic suppliers carry sheets of special plastic designed to simulate water. Cut the plastic to the shape of your valley floor with scissors and simply place it on the felt. Later, use lichen moss and foam bushes to disguise the edges. Thin plastic frosted window material, available at window and hardware stores, can be cut with a fine-toothed blade in a saber saw and set in the bottom of the valley.

Shrubbery

You will find almost as many types of bushes and trees on the market as there are in real life! Whether in kits, made with foam, mesh or real materials, shrubbery should be installed by drilling holes in the plywood tabletop and installing with window glazing putty. Use the non-drying type so items can be easily removed. Realism is increased when moss and shrubbery are sprayed with a mist of light and dark greens, blending colors. Just be sure to cover your lakes, track and buildings before spraying!

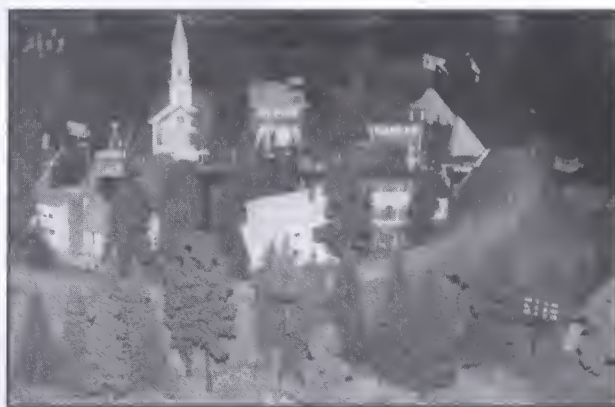


Fig. 4-3

Trees and shrubs on hills and valleys create an idyllic country setting.

Backdrops

Pre-painted scenic backdrops are commercially available and should be glued to a sheet of 1/8" thick wallboard with wallpaper cement. This adds depth to layouts set against a wall. Allow yourself enough "reach" room to work on the back portions of your layout. The seam between the bottom of the backdrop and the tabletop should be disguised with a row of green.

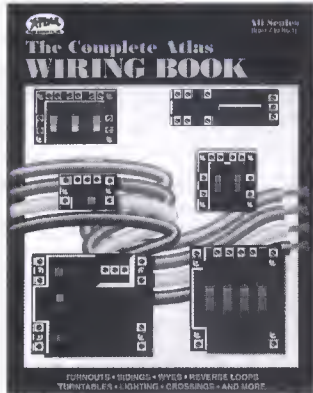
Conclusion

By reading this book, you can see there is no mystery to model railroading. So don your conductor's cap! It's "all aboard" the fascinating hobby of model railroading!

The example pictured on this page shows how all these elements were combined by our own experts. Examine the photo to discover just how much can be accomplished in a small space.



If You Enjoyed This Book, May We Suggest...



The Complete Atlas Wiring book
Wiring with Atlas' electrical components is made easy through step-by-step instructions on how to install and use our quality controls on any layout. Starts beginners with the basics of wiring, and takes advanced modelers through complex wiring situations. Over 100 diagrams complemented by a complete glossary.



The Atlas Parts catalog
Contains exploded locomotive diagrams with parts numbered for easy identification. Includes complete list of available parts and prices for all locomotives, freight cars and more. Same layout assembly, repair and maintenance information included.

ADDITIONAL LAYOUT INSTRUCTION BOOKS

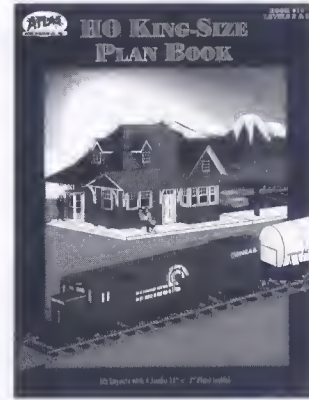
As your skill level increases, you may want to expand your existing layout or build a new one for more complex operation. Atlas' Intermediate and Advanced layout books contain many interesting layout plans for more experienced modelers.



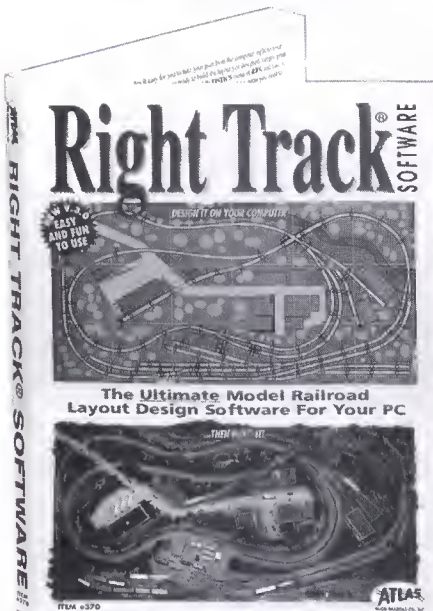
#11 HO Layouts For Every Space
Intermediate \$4.95
This book contains plans for the most unusual spaces, both large and small.



#13 Seven Step-by-Step HO Railroads
For All Skill Levels \$4.95
This book takes you step-by-step to building seven different exciting railroads ranging from simple to very complex.

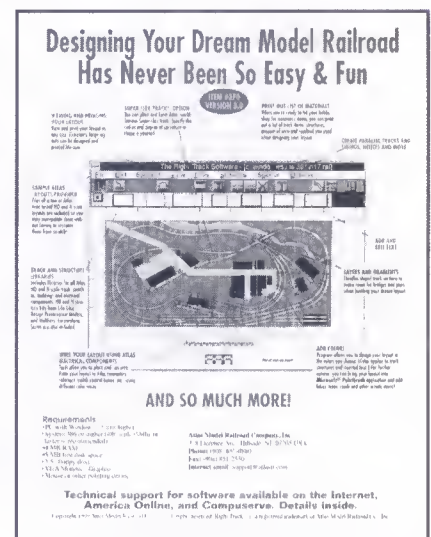


#14 HO King-Size Plan Book
Advanced \$6.95
The layouts in this book are large and relatively complex. Four out of six of the track plans fold out to become 11" x 17" so they are easy to see and follow. All plans are in 2" to the foot scale format.



LAYOUT PLANNING SOFTWARE

#370 Right Track Software for the PC - \$32.95
Design a layout right on your computer using electronic templates of Atlas HO and N scale sectional and flex-track, bridges, buildings and electrical components, as well as structures from DPM, Life-Like and Walther's Cornerstone series. Includes many exciting features including the ability to work on various layers, define radii for flex-track pieces, add track gradients, helices, parallel tracks and more! Software contains a few sample Atlas layouts taken from Atlas layout instruction books like this one, which you can manipulate as you choose.



Check your local hobby shop for these and other Atlas products.

Notes:



SUCCESS STARTS HERE!

Open this book and enter the world of ATLAS - the thoughtful model railroaders' choice for quality, value and performance.

LAYOUT PLANNING & CONSTRUCTION MADE EASY! First-timers will benefit from the recognized expertise of ATLAS' own modelers. We invented Flex-Track® and Snap-Track®, the complete lines of reliable, easy-to-install track products, whether you're building your first layout or your forty-first! Each of the layouts in this book is designed to make maximum use of the unique qualities of ATLAS track products and includes a complete list of all the products and tools you'll need.

BUT THAT'S NOT ALL! ATLAS takes you beyond basic layout techniques to the finishing touches that will make your railroad realistic and thrilling to run. Written in plain, easy-to-understand language.

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- Comprehensive list of all ATLAS track needed for each layout
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